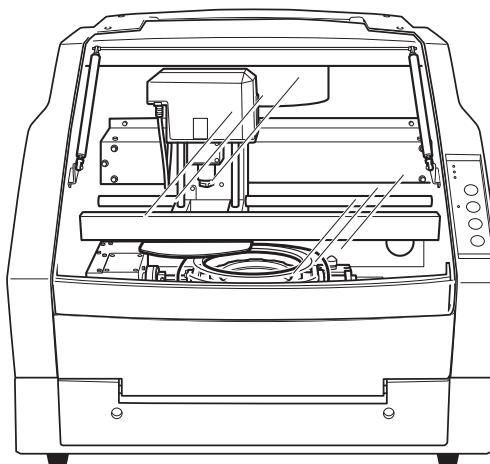


DWX-30

User's Manual



Thank you very much for purchasing this product.

- To ensure correct and safe usage with a full understanding of this product's performance, please be sure to read through this manual completely and store it in a safe location.
- Unauthorized copying or transferral, in whole or in part, of this manual is prohibited.
- The contents of this operation manual and the specifications of this product are subject to change without notice.
- The operation manual and the product have been prepared and tested as much as possible. If you find any misprint or error, please inform us.
- Roland DG Corp. assumes no responsibility for any direct or indirect loss or damage which may occur through use of this product, regardless of any failure to perform on the part of this product.
- Roland DG Corp. assumes no responsibility for any direct or indirect loss or damage which may occur with respect to any article made using this product.

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.

When the equipment requires a usb cable, it must be shielded type.

For Canada

CLASS A

NOTICE

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

CLASSE A

AVIS

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For EU Countries



Manufacturer:

ROLAND DG CORPORATION

1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103 JAPAN

The authorized representative in the EU:

Roland DG Corporation, German Office Halskestrasse 7, 47877 Willich, Germany

For EU Countries

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Roland DG Corp. has licensed the MMP technology from the TPL Group.

NOTICE

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.

Repair or replace damaged or worn cord immediately.

For California

WARNING

This product contains chemicals known to cause cancer, birth defects and other reproductive harm, including lead.

Operating Instructions

KEEP GUARDS IN PLACE and in working order.

REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.

KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.

DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.

KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.

MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starker keys.

DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.

USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.

USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.

USE SAFETY GLASSES, face or dust mask if cutting or cleaning operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.

SECURE WORK. Use clamps or a vise to hold work when practical.

DON'T OVERREACH. Keep proper footing and balance at all times.

MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and the like.

REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in off position before plugging in.

USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.

NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.

CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.

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To Ensure Safe Use

Improper handling or operation of this machine may result in injury or damage to property. Points which must be observed to prevent such injury or damage are described as follows.

About **WARNING** and **CAUTION** Notices

WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. Note: Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

	The symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. The symbol at left means "danger of electrocution."
	The symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. The symbol at left means the unit must never be disassembled.
	The symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. The symbol at left means the power-cord plug must be unplugged from the outlet.

 **Incorrect operation may cause injury.** **WARNING**

 **Be sure to follow the operation procedures described in this documentation. Never allow anyone unfamiliar with the usage or handling of the machine to touch it.**

Incorrect usage or handling may lead to an accident.

**Keep children away from the machine.**

The machine includes areas and components that pose a hazard to children and may result in injury, blindness, choking, or other serious accident.

**Never operate the machine while tired or after ingesting alcohol or any medication.**

Operation requires unimpaired judgment. Impaired judgment may result in an accident.

**Conduct operations in a clean, brightly lit location.**

Working in a location that is dark or cluttered may lead to an accident, such as becoming caught in the machine as the result of an inadvertent stumble.

**Never use the machine for any purpose for which it is not intended, or use the machine in an undue manner that exceeds its capacity.**

Doing so may result in injury or fire.

**Never use a cutting tool that has become dull. Perform frequent maintenance to keep and use the machine in good working order.**

Unreasonable usage may result in fire or injury.

 **WARNING**

For accessories (optional and consumable items, power cord, and the like), use only genuine articles compatible with this machine.

Incompatible items may lead to an accident.

**Before attempting cleaning, maintenance, or attachment or detachment of optional items, disconnect the power cord.**

Attempting such operations while the machine is connected to a power source may result in injury or electrical shock.

**Never attempt to disassemble, repair, or modify the machine.**

Doing so may result in fire, electrical shock, or injury. Entrust repairs to a trained service technician.

**CAUTION****Never climb or lean on the machine.**

The machine is not made to support a person. Climbing or leaning on the machine may dislodge components and cause a slip or fall, resulting in injury.

 **This machine weighs 47 kg (104 lb.)**

 **CAUTION**



Unloading and emplacement are operations that must be performed by 2 persons or more.

Tasks that require undue effort when performed by a small number of persons may result in physical injury. Also, if dropped, such items may cause injury.

 **CAUTION**



Install in a location that is level and stable.

Installation in an unsuitable location may cause an accident, including a fall or tip over.



The cutting waste or workpiece may catch fire or pose a health hazard.

 **WARNING**



Never attempt to cut magnesium or any other such flammable material.

Fire may occur during cutting.



Keep open flame away from the work area.

Cutting waste may ignite. Powdered material is extremely flammable, and even metal material may catch fire.



When using a vacuum cleaner to take up cutting waste, exercise caution to prevent fire or dust explosion.

Taking up fine cuttings using an ordinary vacuum cleaner may cause danger of fire or explosion. Check with the manufacturer of the vacuum cleaner. When the safety of use cannot be determined, clean using a brush or the like, without using the vacuum cleaner.

 **CAUTION**



Wear dust goggles and a mask. Wash away any cutting waste remaining on the hands.

Accidentally swallowing or inhaling cutting waste may be hazardous to the health.



Danger of pinching, entanglement, and burns.

WARNING



Never attempt operation while wearing a necktie, necklace, loose clothing, or gloves. Bind long hair securely.

Such items may become caught in the machine, resulting in injury.



Securely fasten the cutting tool and workpiece in place. After securing in place, make sure no wrenches or other articles have inadvertently been left behind.

Otherwise such articles may be thrown from the machine with force, posing a risk of injury.



Exercise caution to avoid being pinched or becoming caught.

Inadvertent contact with certain areas may cause the hand or fingers to be pinched or become caught. Use care when performing operations.



Caution: cutting tool.

The cutting tool is sharp. To avoid injury, exercise caution.



Caution: high temperatures.

The cutting tool and spindle motor become hot. Exercise caution to avoid fire or burns.

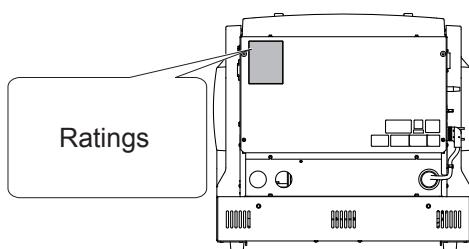
⚠ Danger of electrical short, shock, electrocution, or fire

⚠ WARNING



Connect to an electrical outlet that complies with this machine's ratings (for voltage and frequency).

Provide a power supply whose amperage is 2.8 A or higher (for 100 to 120 V) or 1.2 A or higher (for 220 to 240 V).



Never use out of doors or in any location where exposure to water or high humidity may occur. Never touch with wet hands.

Doing so may result in fire or electrical shock.



Never allow any foreign object to get inside. Never expose to liquid spills.

Inserting objects such as coins or matches or allowing beverages to be spilled into the ventilation ports may result in fire or electrical shock. If anything gets inside, immediately disconnect the power cord and contact your authorized Roland DG Corp. dealer.

⚠ WARNING



Never place any flammable object nearby. Never use a combustible aerosol spray nearby. Never use in any location where gases can accumulate.

Combustion or explosion may be a danger.



Handle the power cord, plug, and electrical outlet correctly and with care. Never use any article that is damaged.

Using a damaged article may result in fire or electrical shock.



When using an extension cord or power strip, use one that adequately satisfies the machine's ratings (for voltage, frequency, and current).

Use of multiple electrical loads on a single electrical outlet or of a lengthy extension cord may cause fire.



When the machine will be out of use for a prolonged period, disconnect the power cord.

This can prevent accidents in the event of current leakage or unintended startup.



Connect to ground.

This can prevent fire or electrical shock due to current leakage in the event of malfunction.



Position so that the power plug is within immediate reach at all times.

This is to enable quick disconnection of the power plug in the event of an emergency. Install the machine next to an electrical outlet. Also, provide enough empty space to allow immediate access to the electrical outlet.



Never use cutting oil.

This machine is not designed for the flow of cutting oil. Oil may get inside the machine and cause fire or electrical shock.

WARNING



Never use a pneumatic blower.

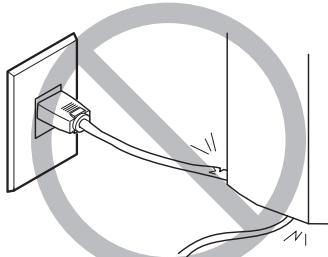
This machine is not compatible with a pneumatic blower. Cutting waste may get inside the machine and cause fire or electrical shock.



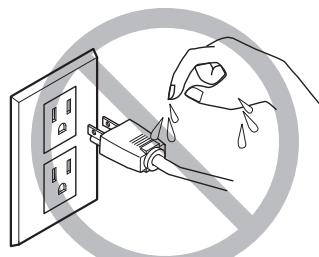
If sparking, smoke, burning odor, unusual sound, or abnormal operation occurs, immediately unplug the power cord. Never use if any component is damaged.

Continuing to use the machine may result in fire, electrical shock, or injury. Contact your authorized Roland DG Corp. dealer.

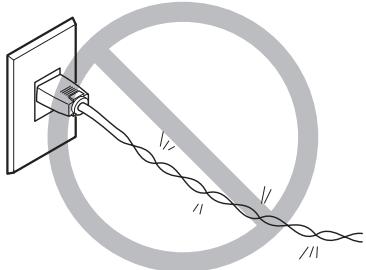
⚠ Important notes about the power cord, plug, and electrical outlet



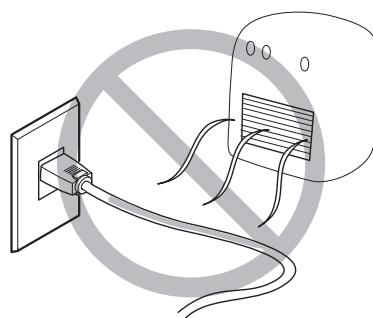
Never place any object on top or subject to damage.



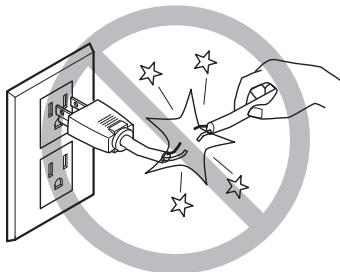
Never allow to get wet.



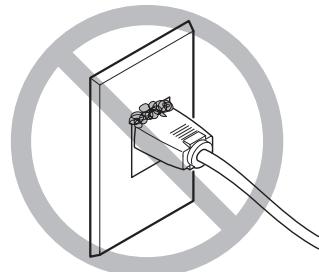
Never bend or twist with undue force.



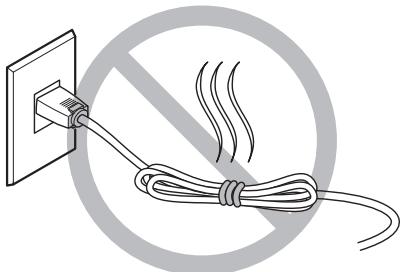
Never make hot.



Never pull with undue force.



Dust may cause fire.

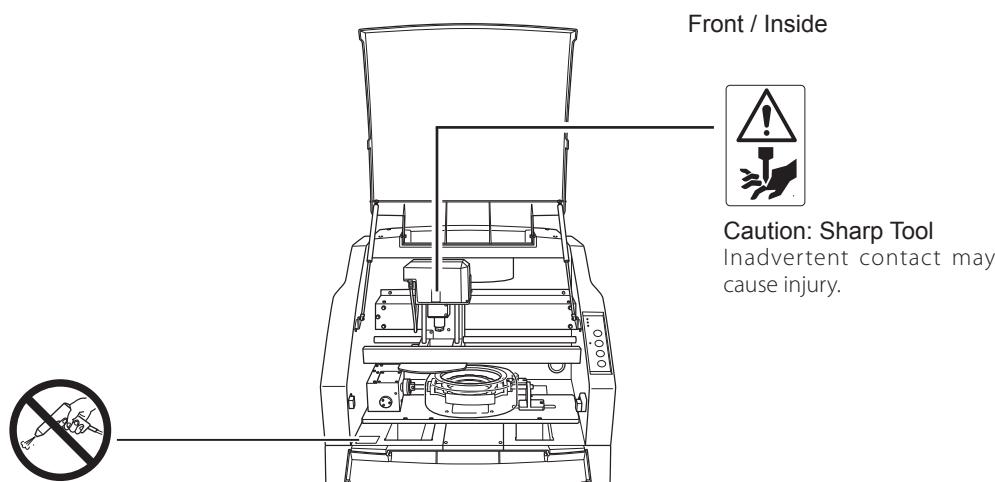
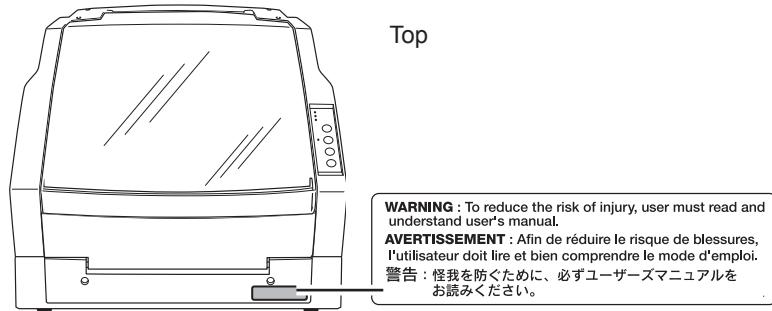


Never bundle, bind, or roll up.

⚠ Warning Labels

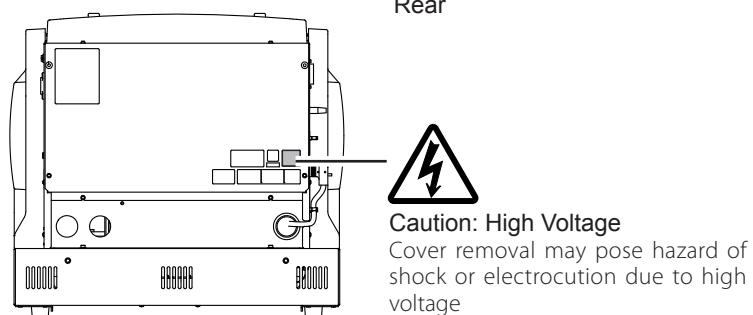
Warning labels are affixed to make areas of danger immediately clear. The meanings of these labels are as follows. Be sure to heed their warnings.

Also, never remove the labels or allow them to become obscured.



Never use a pneumatic blower.

This machine is not compatible with a pneumatic blower. Cutting waste may get inside the machine and cause fire or electrical shock.





Pour utiliser en toute sécurité

La manipulation ou l'utilisation inadéquates de cet appareil peuvent causer des blessures ou des dommages matériels. Les précautions à prendre pour prévenir les blessures ou les dommages sont décrites ci-dessous.

Avis sur les avertissements

ATTENTION	Utilisé pour avertir l'utilisateur d'un risque de décès ou de blessure grave en cas de mauvaise utilisation de l'appareil.
PRUDENCE	Utilisé pour avertir l'utilisateur d'un risque de blessure ou de dommage matériel en cas de mauvaise utilisation de l'appareil. * Par dommage matériel, il est entendu dommage ou tout autre effet indésirable sur la maison, tous les meubles et même les animaux domestiques.

À propos des symboles

	Le symbole attire l'attention de l'utilisateur sur les instructions importantes ou les avertissements. Le sens précis du symbole est déterminé par le dessin à l'intérieur du triangle. Le symbole à gauche signifie "danger d'électrocution."
	Le symbole avertit l'utilisateur de ce qu'il ne doit pas faire, ce qui est interdit. La chose spécifique à ne pas faire est indiquée par le dessin à l'intérieur du cercle. Le symbole à gauche signifie que l'appareil ne doit jamais être démonté.
	Le symbole prévient l'utilisateur sur ce qu'il doit faire. La chose spécifique à faire est indiquée par le dessin à l'intérieur du cercle. Le symbole à gauche signifie que le fil électrique doit être débranché de la prise.



L'utilisation incorrecte peut causer des blessures

ATTENTION



S'assurer de suivre les procédures d'utilisation décrites dans la documentation. Ne jamais permettre à quiconque ne connaît pas le fonctionnement ou la manutention de l'appareil de le toucher. L'utilisation ou la manutention incorrectes peuvent causer un accident.



Garder les enfants loin de l'appareil.

L'appareil comporte des zones et des composants qui présentent un danger pour les enfants et qui pourraient causer des blessures, la cécité, la suffocation ou d'autres accidents graves.



Ne jamais faire fonctionner l'appareil après avoir consommé de l'alcool ou des médicaments, ou dans un état de fatigue.

L'utilisation de l'appareil exige un jugement sans faille. L'utilisation avec les facultés affaiblies pourrait entraîner un accident.



Utiliser l'appareil dans un endroit propre et bien éclairé.

Travailler dans un endroit sombre ou encombré peut causer un accident; l'utilisateur risque, par exemple, de trébucher malencontreusement et d'être coincé par une partie de l'appareil.



Ne jamais utiliser l'appareil à des fins autres que celles pour lesquelles il est conçu. Ne jamais l'utiliser de manière abusive ou d'une manière qui dépasse sa capacité.

Le non-respect de cette consigne peut causer des blessures ou un incendie.

ATTENTION



Ne jamais utiliser un outil de coupe émoussé. Procéder fréquemment aux travaux d'entretien pour garder l'appareil en bon état de fonctionnement.

L'usage abusif peut causer un incendie ou des blessures.



Utiliser uniquement des accessoires d'origine (accessoires en option, articles consommables, câble d'alimentation et autres articles semblables), compatibles avec l'appareil.

Les articles incompatibles risquent de causer des accidents.



Débrancher le câble d'alimentation avant de procéder au nettoyage ou à l'entretien de l'appareil, et avant d'y fixer ou d'en retirer des accessoires en option.

Tenter ces opérations pendant que l'appareil est branché à une source d'alimentation peut causer des blessures ou un choc électrique.



Ne jamais tenter de démonter, de réparer ou de modifier l'appareil.

Le non-respect de cette consigne risque de provoquer un incendie, un choc électrique ou des blessures. Confier les réparations à un technicien ayant la formation requise.



PRUDENCE



Ne jamais grimper ni s'appuyer sur la machine.

La machine n'est pas conçue pour supporter le poids d'une personne. Grimper ou s'appuyer sur la machine peut déplacer des éléments et causer un faux pas ou une chute, ce qui causerait des blessures.



Le poids de cet appareil est de 47 kg (104 lb.)

⚠ PRUDENCE



Le déchargement et la mise en place doivent être faits par au moins 2 personnes.

Les tâches qui exigent un effort trop grand si elles sont exécutées par un petit nombre de personnes peuvent être cause de blessures. La chute d'articles très lourds peut aussi causer des blessures.

⚠ PRUDENCE



Installer l'appareil à un endroit stable et plat.

Installer l'appareil à un endroit inapproprié peut provoquer un accident grave comme le renversement ou la chute.



Les débris de coupe peuvent s'enflammer ou présenter un risque pour la santé.

⚠ ATTENTION



Ne jamais tenter de couper du magnésium ni aucun autre matériau inflammable.

Un incendie pourrait se produire pendant la coupe.



Ne pas approcher une flamme nue de l'espace de travail.

Les rognures de coupe peuvent s'enflammer. Les matériaux pulvérisés sont extrêmement inflammables et même le métal peut s'enflammer.



Si un aspirateur est utilisé pour ramasser les rognures de coupe, faire preuve de prudence pour empêcher que la poussière s'enflamme ou explose.

Ramasser des rognures fines à l'aide d'un aspirateur ordinaire peut créer un risque d'incendie ou d'explosion. Vérifier auprès du fabricant de l'aspirateur. Dans les cas où il est impossible de déterminer si un aspirateur peut être utilisé sans danger, se servir d'une brosse ou d'un article semblable plutôt que d'un aspirateur.

⚠ PRUDENCE



Porter des lunettes de protection et un masque. Rincer toutes les rognures de coupe qui pourraient rester collées aux mains.

Avaler ou respirer accidentellement des rognures de coupe peut être dangereux pour la santé.

 Certains éléments peuvent présenter un risque de pincement, d'emmûlement, de brûlure ou d'autres dangers.

 **ATTENTION**



Ne jamais faire fonctionner l'appareil si on porte une cravate, un collier ou des vêtements amples. Bien attacher les cheveux longs.

Ces vêtements ou ces objets peuvent être coincés dans l'appareil, ce qui causerait des blessures.



Fixer solidement l'outil de coupe et la pièce à travailler. Une fois qu'ils sont fixés solidement, s'assurer qu'aucun outil ni aucun autre objet n'a été laissé en place.

Si tel était le cas, ces objets pourraient être projetés avec force hors de l'appareil et causer des blessures.



Faire preuve de prudence pour éviter l'écrasement ou le coincement.

La main ou les doigts peuvent être écrasés ou coincés s'ils entrent en contact avec certaines surfaces par inadvertance. Faire preuve de prudence pendant l'utilisation de l'appareil.



Attention : outil de coupe.

L'outil de coupe est acéré. Faire preuve de prudence pour éviter les blessures.



Attention : températures élevées.

L'outil de coupe et le moteur chauffent. Faire preuve de prudence pour éviter un incendie ou des brûlures.



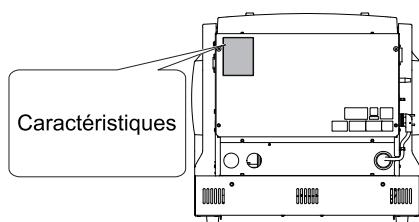
Risque de décharge ou de choc électrique, d'électrocution ou d'incendie

⚠ ATTENTION



Brancher à une prise électrique conforme aux caractéristiques de cet appareil (tension et fréquence).

Il faut prévoir une alimentation en courant dont l'intensité est de 2.8 A ou plus (pour 100 à 120 V) ou de 1.2 A ou plus (pour 220 à 240 V).



Ne jamais utiliser à l'extérieur ni à un endroit où l'appareil risque d'être exposé à de l'eau ou à une humidité élevée. Ne jamais toucher l'appareil avec des mains mouillées.

Le non-respect de cette consigne risque de provoquer un incendie ou un choc électrique.



Ne jamais insérer d'objet étranger dans l'appareil. Ne jamais exposer l'appareil aux déversements de liquides.

L'insertion d'objets comme des pièces de monnaie ou des allumettes, ou le déversement de liquides dans les orifices de ventilation peuvent causer un incendie ou un choc électrique. Si un objet ou du liquide s'infiltre dans l'appareil, débrancher immédiatement le câble d'alimentation et communiquer avec le représentant Roland DG autorisé.

⚠ ATTENTION



Ne jamais placer d'objet inflammable à proximité de l'appareil. Ne jamais utiliser de produit inflammable en aérosol à proximité de l'appareil. Ne jamais utiliser l'appareil dans un endroit où des gaz peuvent s'accumuler.

Une combustion ou une explosion pourraient se produire.



Mise à la terre.

La mise à la terre peut prévenir un incendie ou un choc électrique dus à une fuite de courant en cas de défaillance.



Manipuler le câble d'alimentation, la fiche et la prise électrique correctement et avec soin.

Ne jamais utiliser un article endommagé, car cela pourrait causer un incendie ou un choc électrique.



Si une rallonge ou une bande d'alimentation électrique sont utilisées, s'assurer qu'elles correspondent aux caractéristiques de l'appareil (tension, fréquence et courant).

L'utilisation de plusieurs charges électriques sur une prise unique ou une longue rallonge peut causer un incendie.



Si l'appareil doit rester inutilisé pendant une longue période, débrancher le câble d'alimentation.

Cela peut prévenir les accidents en cas de fuite de courant ou de démarrage accidentel.

ATTENTION

Placer l'appareil de façon à ce que la fiche soit facile d'accès en tout temps.

Ainsi, l'appareil pourra être débranché rapidement en cas d'urgence. Installer l'appareil près d'une prise électrique. En outre, prévoir suffisamment d'espace pour que la prise électrique soit facile d'accès.

Ne jamais utiliser d'huile de coupe.

Cet appareil n'est pas conçu pour traiter l'huile de coupe. L'huile peut s'infiltre à l'intérieur et causer un incendie ou un choc électrique.

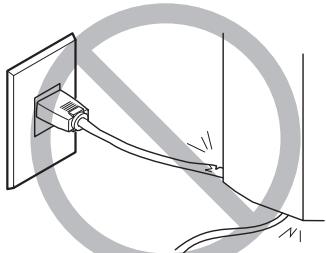
Ne jamais utiliser d'air sous pression.

Cet appareil n'est pas conçu pour être nettoyé à l'aide d'un appareil soufflant. Des rognures de coupe peuvent s'infiltre à l'intérieur et causer un incendie ou un choc électrique.

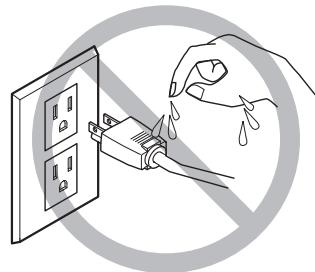
S'il se produit des étincelles, de la fumée, une odeur de brûlé, un bruit inhabituel ou un fonctionnement anormal, débrancher immédiatement le câble d'alimentation. Ne jamais utiliser si un composant est endommagé.

Continuer à utiliser l'appareil peut causer un incendie, un choc électrique ou des blessures. Communiquer avec le représentant Roland DG Autorisé.

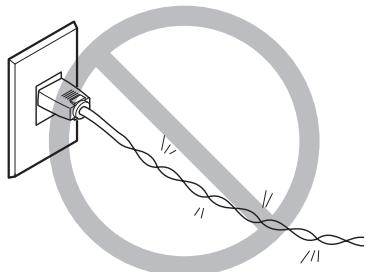
⚠ Remarques importantes à propos du câble d'alimentation, de la fiche et de la prise électrique



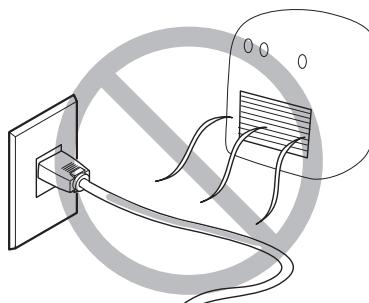
Ne jamais déposer aucun objet sur le câble, sur la fiche ou sur la prise car cela risque de les endommager.



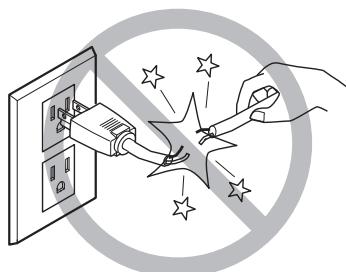
Ne jamais laisser l'eau toucher le câble, la fiche ou la prise.



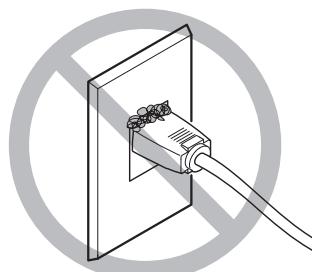
Ne jamais plier ni tordre le câble avec une force excessive.



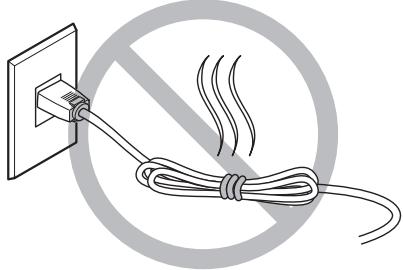
Ne jamais chauffer le câble, la fiche ou la prise.



Ne jamais tirer sur le câble ou la fiche avec une force excessive.



La poussière peut causer un incendie.

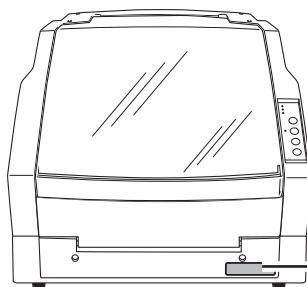


Ne jamais plier ni enrouler le câble.

⚠ Vignettes d'avertissement

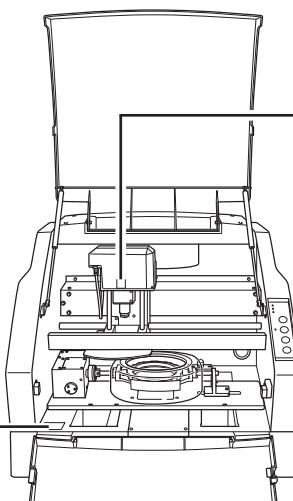
Des vignettes d'avertissement sont apposées pour qu'il soit facile de repérer les zones dangereuses. La signification des vignettes est donnée ci-dessous. Respecter les avertissements. Ne jamais retirer les vignettes et ne pas les laisser s'encrasser.

Avant



WARNING : To reduce the risk of injury, user must read and understand user's manual.
AVERTISSEMENT : Afin de réduire le risque de blessures, l'utilisateur doit lire et bien comprendre le mode d'emploi.
警告：怪我を防ぐために、必ずユーザーズマニュアルをお読みください。

Intérieur



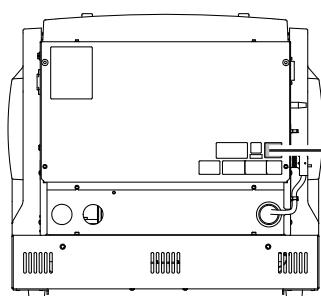
Attention : outil coupant
Un contact imprudent risque d'entraîner une blessure.



Ne jamais utiliser d'air sous pression.

Cet appareil n'est pas conçu pour être nettoyé à l'aide d'un appareil soufflant. Des rognures de coupe peuvent s'infiltre à l'intérieur et causer un incendie ou un choc électrique.

Arrière



Attention : voltage élevé

Il peut être dangereux de retirer le couvercle puisqu'il y aurait des risques de chocs électriques ou d'électrocution à cause du voltage élevé.

Important Notes on Handling and Use

This machine is a precision device. To ensure the full performance of this machine, be sure to observe the following important points. Failure to observe these points may not only result in loss of performance, but may also cause malfunction or breakdown.

This machine is a precision device.

- Handle carefully, and never subject the machine to impact or excessive force.
- Diligently keep clean of cutting waste.
- Use within the range of specifications.
- Never attempt to move the spindle head and rotary axis by hand with undue force.
- Never needlessly touch anywhere inside the machine except for locations specified in this manual.

Install in a suitable location.

- Install in a location that meets the specified conditions for temperature, relative humidity, and the like.
- Install in a quiet, stable location offering good operating conditions.
- Never install in out doors.
- Never use the machine in an environment where silicone substances (oil, grease, spray, etc.) are present. Doing so may cause poor switch contact.

This machine becomes hot.

- Never cover the ventilation holes with cloth, tape, or anything else.
- Install in a well-ventilated location.

This machine is exclusively for cutting modeling wax and zirconia.

- Never cut any material other than modeling wax and zirconia.

About Tools

- The tip of the tool is breakable. Handle with care, being careful not to drop it.

About the Documentation for This Machine

Documentation Included with the Machine

The following documentation is included with the machine.

User's Manual (this manual)

This contains important notes for ensuring safe use, as well as detailed information on how to install and operate the machine and install and set up the included programs.
Be sure to read it first.

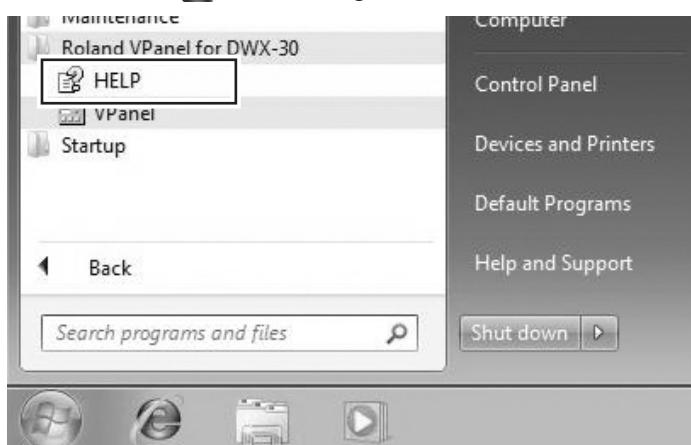
VPanel Online Help (electronic-format manual)

These are user's manual that you view on a computer screen. Installing the respective programs makes these available for viewing.

☞ P. 42, "Installing and Setting Up VPanel"

How to View the VPanel Online Help

From the [Start] menu(), click [All Programs], then [Roland VPanel for DWX-30]. Then click [HELP].



Chapter 1

Getting Started

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1-1 Machine Highlights

What You Can Do with This Machine

A Machine Exclusively for Creating Artificial Teeth and Tooth Models

This machine is exclusively for making artificial teeth and tooth models. It is used to produce artificial teeth and tooth models using modeling wax or zirconia.

Installing and setting up the exclusive programs on your computer and connecting the machine to the computer enables you to create high-quality artificial teeth and tooth models in much less time than it would take to fashion them by hand.

Includes Special Jig As Standard Features

The jig needed to make artificial teeth and tooth models is included with the machine as standard equipment.

Easy-operation VPanel and Handy Panel

VPanel, which you use once installed and set up on a computer, is the main operation panel for the machine, achieving ease of use with a large display area. Using VPanel, not only can you move the tool and switch the spindle on and off, you can also perform automatic detection of the location of the installed jig, make the settings for the origin points, and more. You can also operate the machine while watching the workpiece from close up by using the handy panel, which is capable of a subset of operations for tool movement and spindle on/off control.

Equipped with a High-performance Tool Sensor

The machine is equipped with the high-performance tool sensor needed to achieve high-precision cutting. Detection of the jig location and setting the reference position for cutting can be accomplished accurately thanks to this high-performance tool sensor.

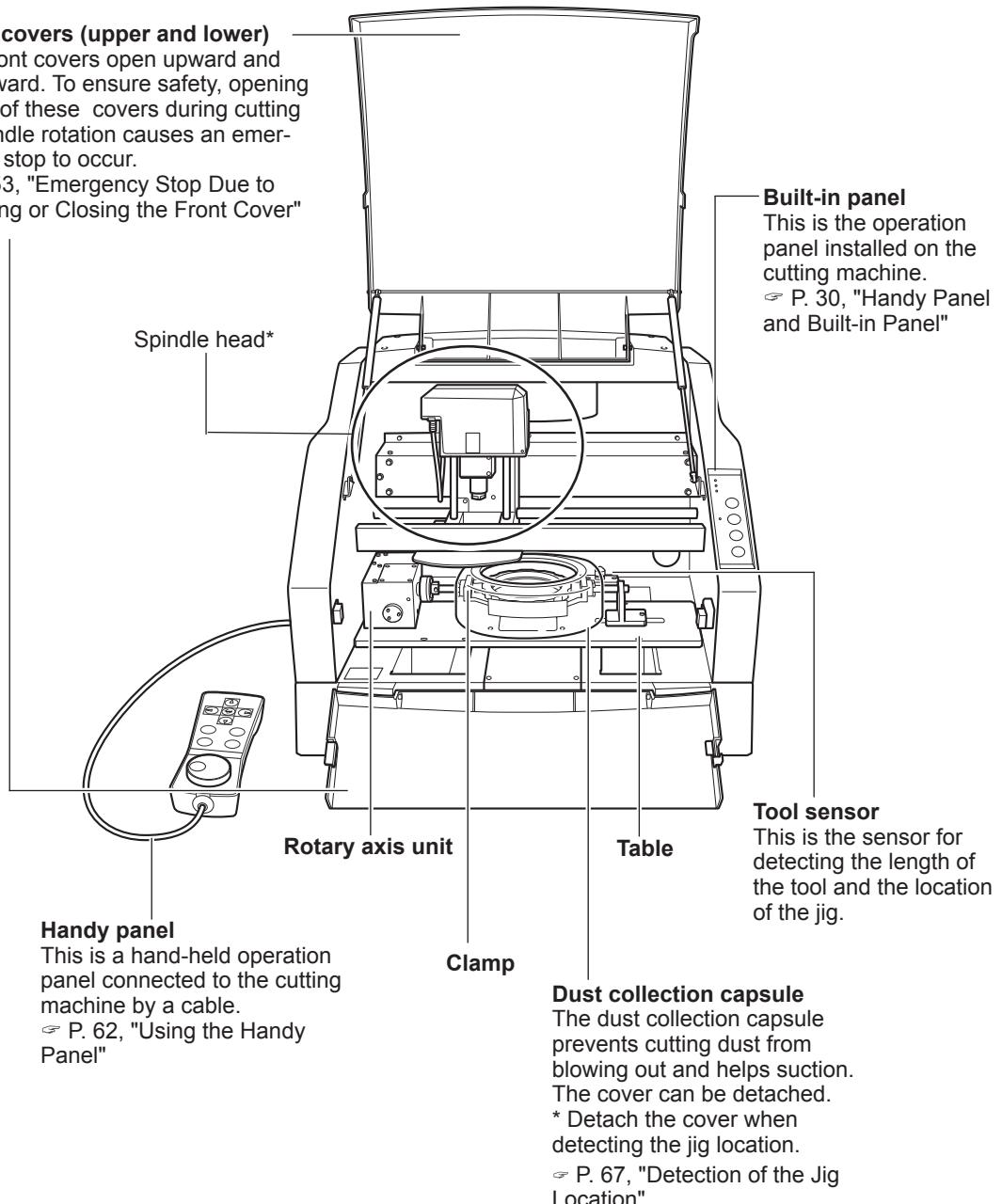
1-2 Part Names and Functions

Front and Interior

Front covers (upper and lower)

The front covers open upward and downward. To ensure safety, opening either of these covers during cutting or spindle rotation causes an emergency stop to occur.

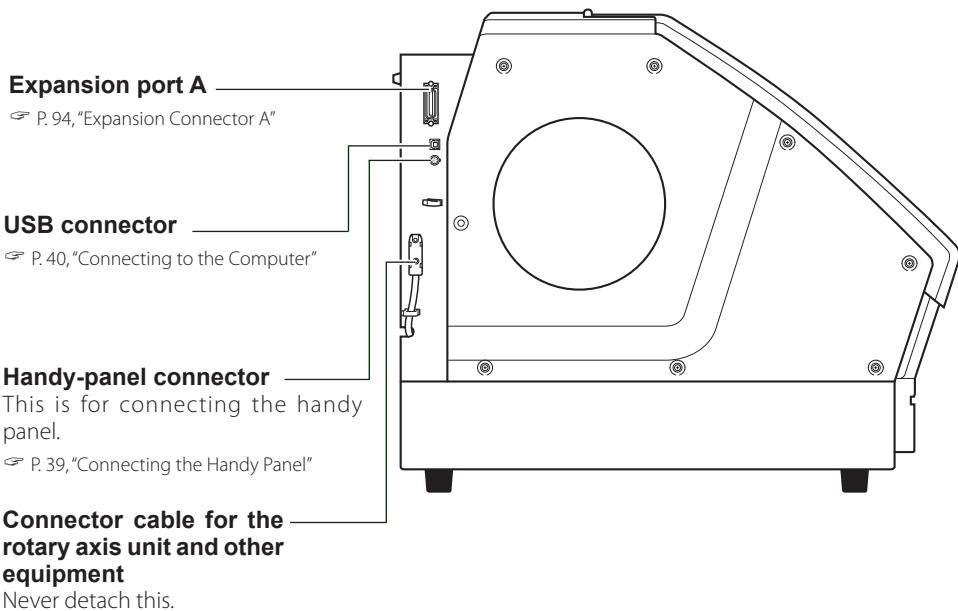
☞ P. 53, "Emergency Stop Due to Opening or Closing the Front Cover"



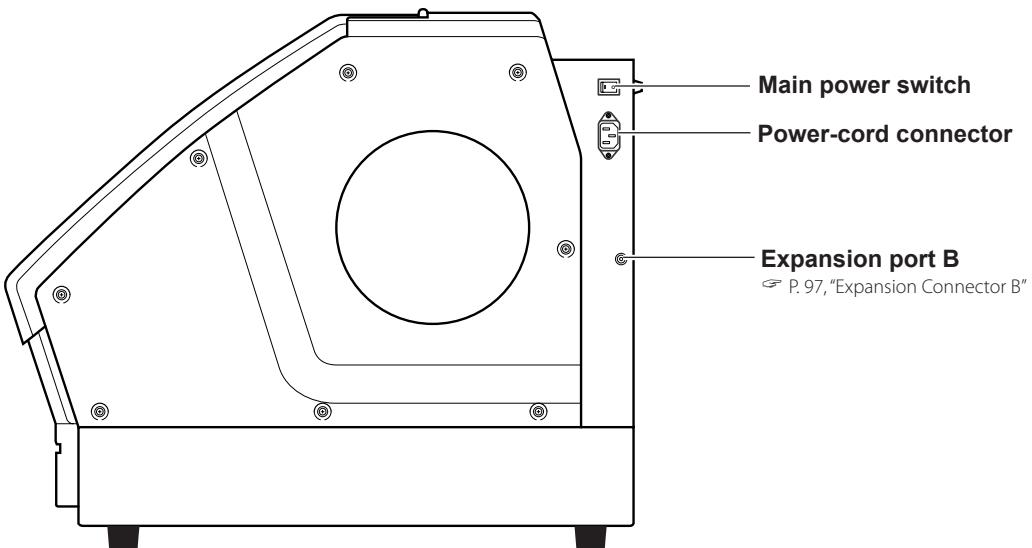
*NOTE: In this manual, the mechanisms around the spindle unit, including the spindle motor, are called the "spindle head." Also, the rotary-axis area inside the spindle unit is called the "spindle."

Side

Left side

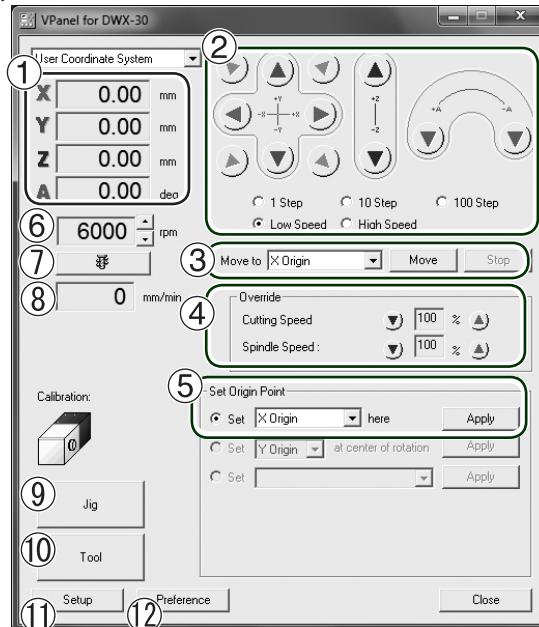


Right side



VPanel

Operation of the machine is controlled from the screen of your computer. VPanel is a dedicated program for controlling the machine.



① Coordinates

This displays the present tool location.

☞ P. 55, "Viewing the Tool Location"

② Feed buttons

These perform movement along the respective axes (X, Y, Z, and A).

☞ P. 54, "Manual Feed"

③ Specific-destination movement button

You use this to make the tool move directly to a specific position.

☞ P. 57, "Moving to a Specific Position"

④ Override buttons

These change the speed of spindle rotation and other aspects of cutting operations.

☞ P. 80, "Override"

⑤ Base-point setting buttons

These set the base points used during cutting, such as the X- and Y-axis origin points.

⑥ Spindle speed

This displays the present rotating speed of the spindle. Changing the speed is also possible.

⑦ Spindle-rotation button

This switches spindle rotation on and off.

☞ P. 58, "Starting and Stopping Spindle Rotation"

⑧ Tool feed rate

This displays the present speed of tool movement.

⑨ Jig button

This detects the jig and sets the origin points.

⑩ Tool button

This measures the length of the mounted tool.

⑪ Setup button

You use this at times such as when making settings to fine-tune the operation of the machine. For detailed information about the setting, refer to the online help of VPanel.

☞ P. 23, "How to View the VPanel Online Help"

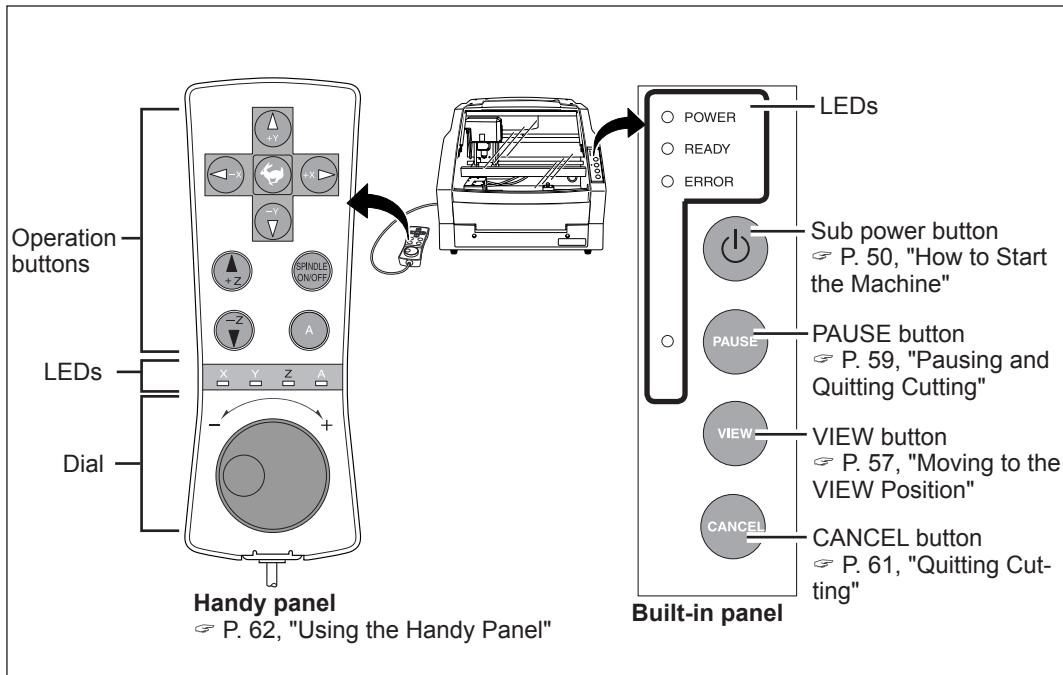
⑫ Preference button

You use this at times such as when setting the measurement unit used to display coordinates in VPanel. For detailed information about the setting, refer to the online help of VPanel.

☞ P. 23, "How to View the VPanel Online Help," p. 56, "Changing the Unit of Measurement for Display"

Handy Panel and Built-in Panel

You operate this machine using either the handy panel connected to the cutting machine by a cable, or the machine's built-in panel.



Status Indicated by the LEDs for the Built-in Panel

Name	LED state	Machine status
POWER	Lighted	The main power is on.
	Dark	The main power is off.
READY	Lighted	The sub power is on.
	Flashing	Initializing. The front cover is open. Tool movement is in progress. The spindle is rotating. Cutting is in progress. During stopping cutting <small>Note: When the cutting data is sent during initialization and stopping cutting from the computer, the machine accepts no cutting data.</small>
	Dark	The sub power is off.
ERROR	Flashing slowly	A warning (nonfatal error) has occurred. (A description of the error is displayed in VPanel.)
	Flashing rapidly	An error resulting in an emergency stop has occurred. (A description of the error is displayed in VPanel.)
PAUSE (next to the PAUSE button)	Lighted	Operation is paused.

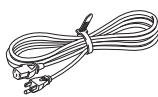
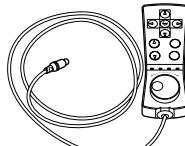
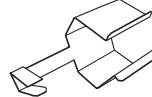
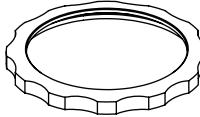
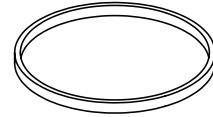
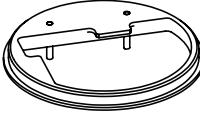
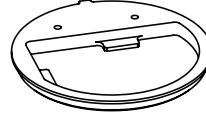
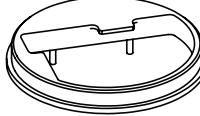
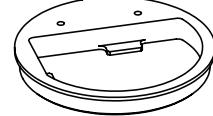
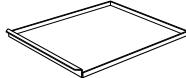
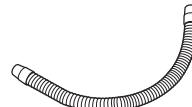
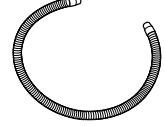
Chapter 2

Installation and Setup

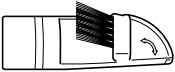
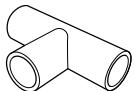
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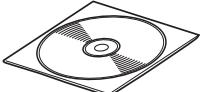
2-1 Checking the Included Items

The following items are included with the machine. Make sure they are all present and accounted for.

*Note: The cutting machine is shipped from the factory with these parts installed on it.

			
Cleaning nozzle (1)	Branch adapter A (1)	Branch adapter B (1)	USB cable (1)

			
User's manual (this document) (1)	Roland Software Package CD-ROM (1)		

2-2 Installation

About Emplacement and Installation

⚠ WARNING

Unloading and emplacement are operations that must be performed by 2 persons or more.

Tasks that require undue effort when performed by a small number of persons may result in physical injury. Also, if dropped, such items may cause injury.

The weight of the machine alone is 47 kg (104 lb.). Perform unloading and emplacement with care.

Installation Environment

Install in a quiet, stable location offering good operating conditions. An unsuitable location can cause accident, fire, faulty operation, or breakdown.

⚠ WARNING

Install in a location that is level and stable.

Installation in an unsuitable location may cause an accident, including a fall or tip over.

⚠ WARNING

Never install in a location exposed to open flame.

Cutting waste may ignite. Powdered material is extremely flammable, and even metal material may catch fire.

⚠ WARNING

Never install close to any flammable object or in a gas-filled location.

Combustion or explosion may be a danger.

⚠ WARNING

Never install outdoors or in any location where exposure to water or high humidity may occur.

Doing so may result in fire or electrical shock.

⚠ WARNING

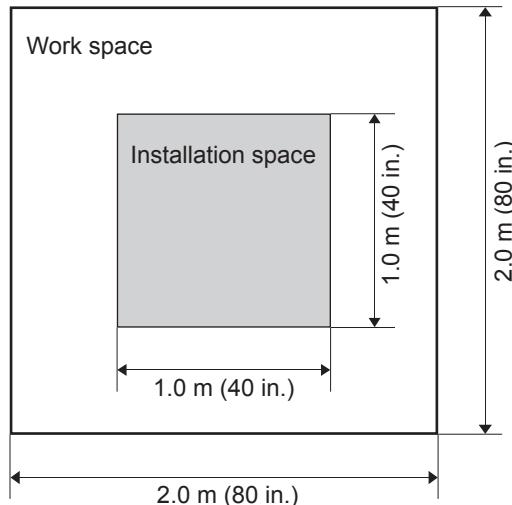
Position so that the power plug is within immediate reach at all times.

This is to enable quick disconnection of the power plug in the event of an emergency. Install the machine next to an electrical outlet. Also, provide enough empty space to allow immediate access to the electrical outlet.

- Never locate in a location subject to wide fluctuations in temperature or humidity.
- Never install in a location subject to shaking or vibration.
- Never install in a location where the floor is tilted, unlevel, or unstable.
- Never install in a dusty or dirty location, or outdoors.
- Never install in a location exposed to direct sunlight or near air-conditioning or heating equipment.
- Never install in a location exposed to considerable electrical or magnetic noise, or other forms of electromagnetic energy.
- Never install in an environment where silicone substances (oil, grease, spray, etc.) are present.

Installation Space

Ensure that at least the following amount of space is available.



About the installation location

The height of installation should be 0.6 m (23.7 in.) or higher above the work floor.

This machine is desktop type. Install in a location that allows easy access to areas such as the main power switch during operation.

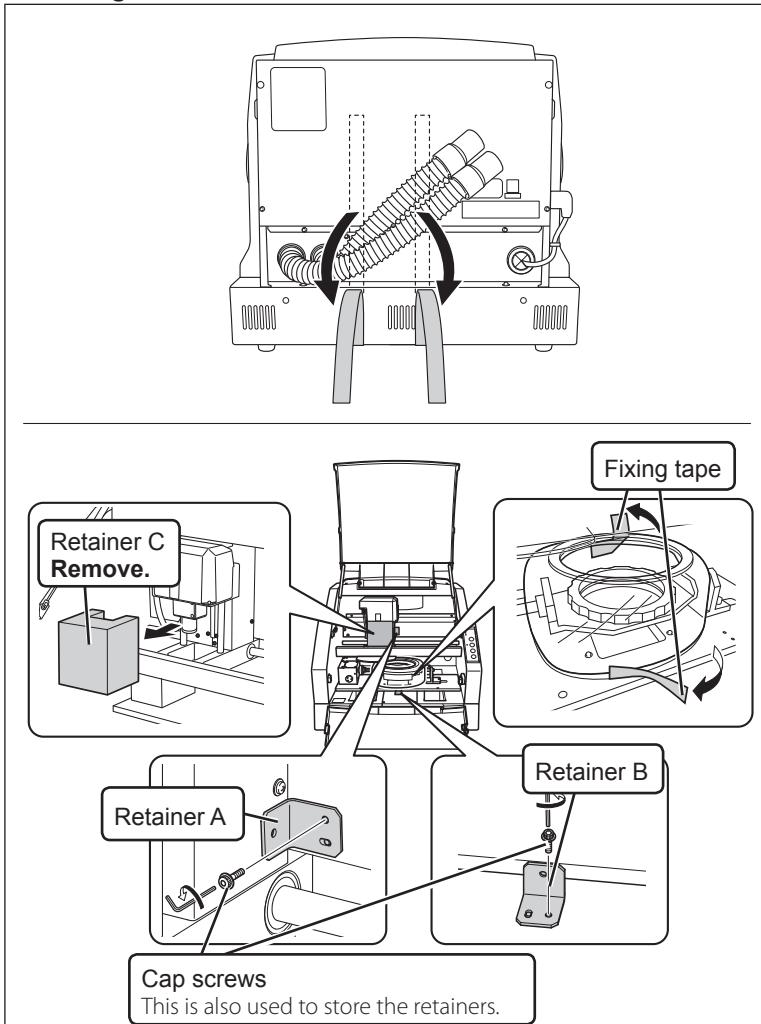
Unpacking

Retaining materials are attached to protect the machine from vibration during shipment. When installation is complete, remove these and store in the specified locations.

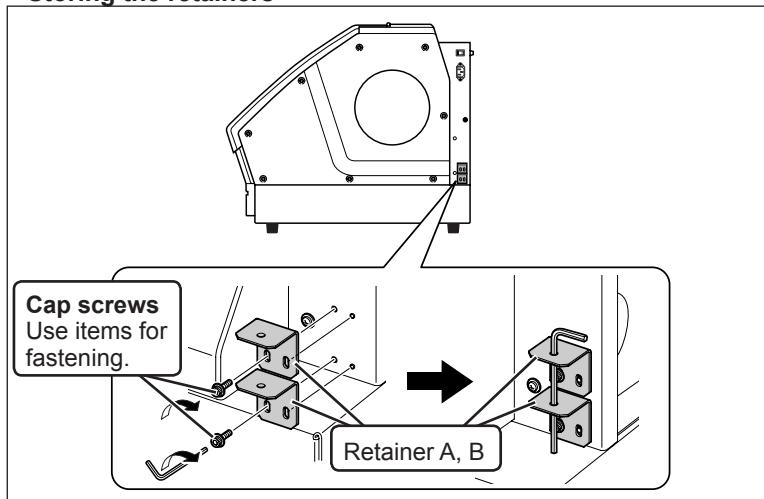
- Remove all retaining materials. Any that remain may cause faulty operation or breakdown when the power is switched on.
- The retaining materials are required when moving the machine to a different location. Store them carefully so that they do not get misplaced.

⚠ WARNING **Carry out these operations before you connect the power cord.**
Inadvertent powerup may result in pinched hands or other injury.

Removing the retainers



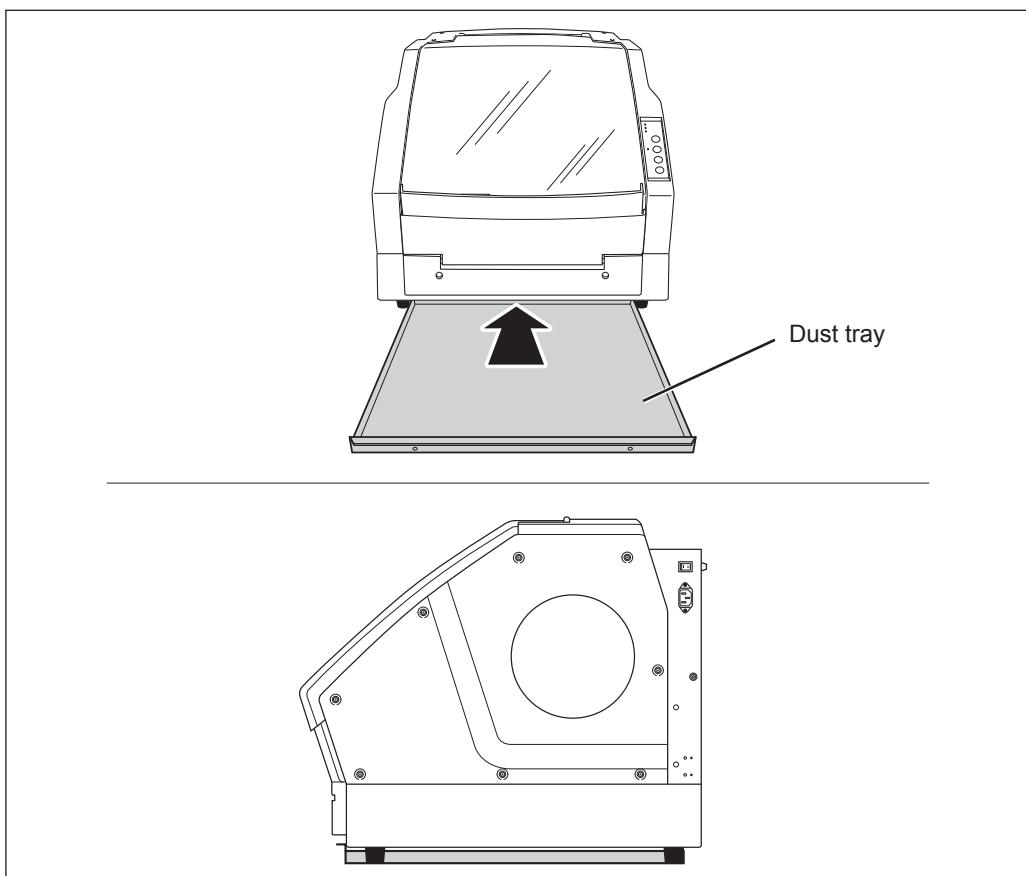
Storing the retainers



You can attach retainers A and B at the location shown in the figure, and store the hexagonal wrench (used when replacing the spindle unit). Store retainer C so that it will not become misplaced, because it is also needed when relocating the machine.

Installing the Dust Tray

You use the dust tray with it placed between the rubber feet on the bottom of the machine.



About a Dust Collector

You can install a dust collector to collect cutting dust to the machine. You need to prepare a dust collector separately. When you use the machine with a dust collector installed, you should clean the dust collector regularly.

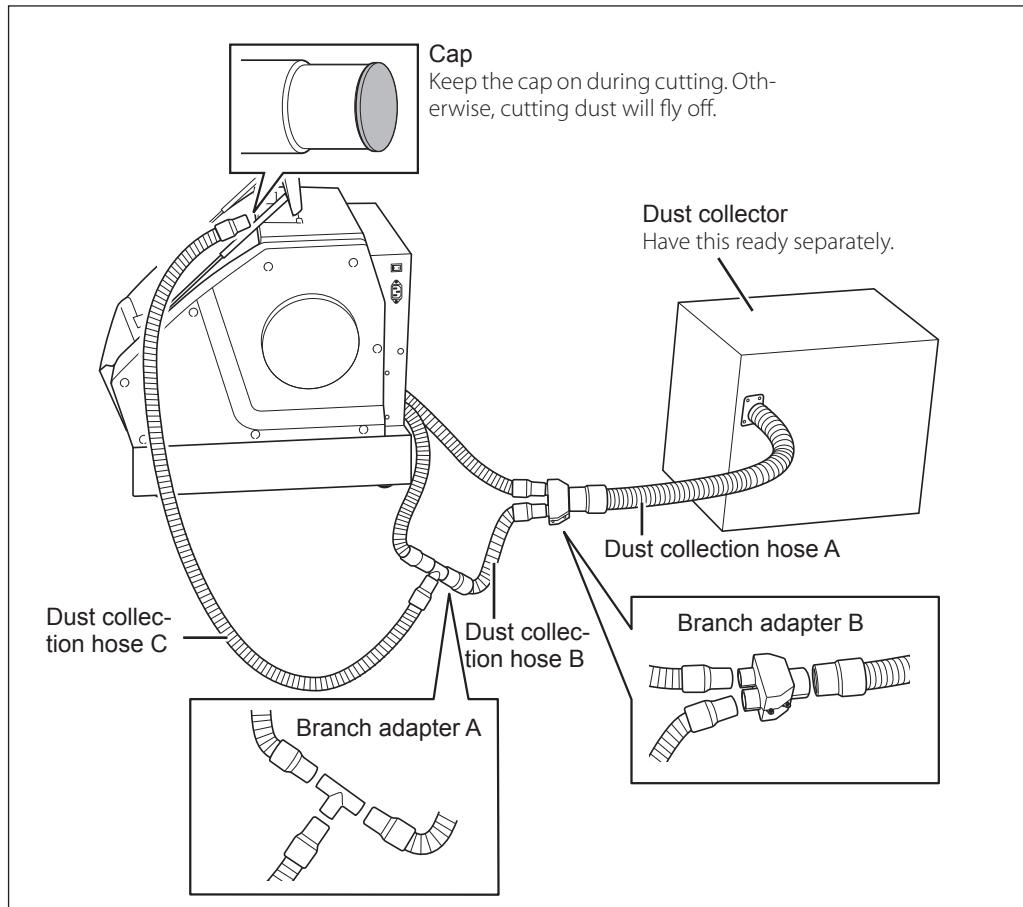
- **Static pressure:** Prepare a dust collector with 1 kPa or more.

How to Connect the Dust Collection Hoses

Connect the supplied hose and branch adaptor as shown in the figure.

*You need to prepare a dust collector separately.

☞ P. 98, "Opening Size to Connect a Dust Collector"



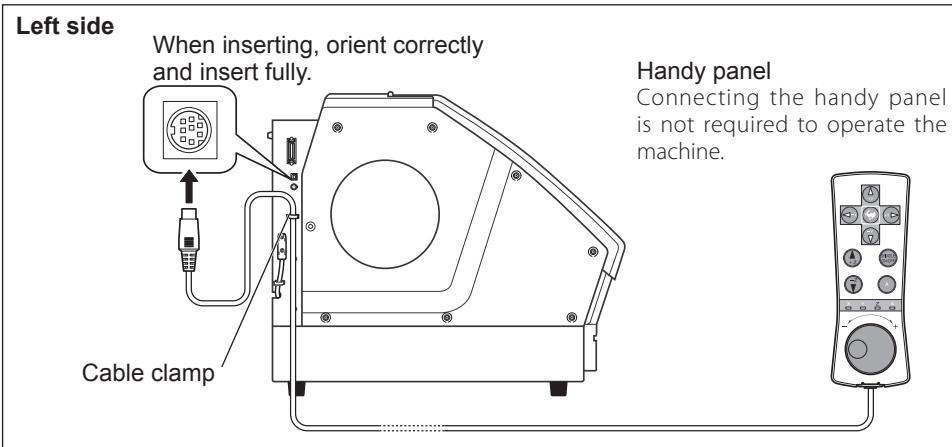
2-3 Cable Connections

Connecting the Handy Panel

⚠ CAUTION

Make sure the power to the machine is switched off before attempting to connect or disconnect the cables.

Connection or disconnection while the power is on may cause the machine to malfunction.



Connecting the Power Cord

⚠ WARNING

Connect to an electrical outlet that complies with this machine's ratings (for voltage and frequency).

Provide a power supply whose amperage is 2.8 A or higher (for 100 to 120 V) or 1.2 A or higher (for 220 to 240 V).

⚠ WARNING

Handle the power cord, plug, and electrical outlet correctly and with care.

Never use any article that is damaged.

Using a damaged article may result in fire or electrical shock.

⚠ WARNING

When using an extension cord or power strip, use one that adequately satisfies the machine's ratings (for voltage, frequency, and current).

Use of multiple electrical loads on a single electrical outlet or of a lengthy extension cord may cause fire.

⚠ WARNING

Connect to ground.

This can prevent fire or electrical shock due to current leakage in the event of malfunction.

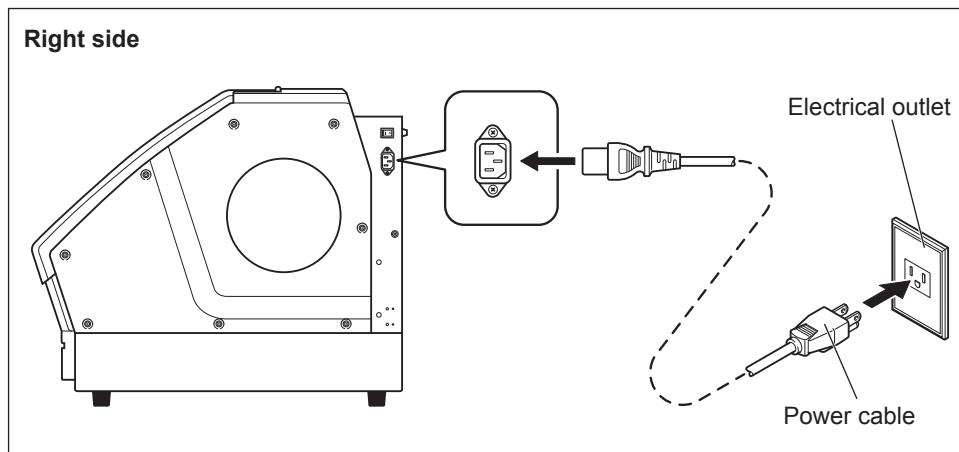
⚠ WARNING

Connect to an electrical outlet. Never connect directly to a power distribution panel or other such fixed wiring equipment.

Doing so increases the hazard of fire or electrical shock.

This machine requires a single-phase commercial power supply.

- 100 to 120 V: 2.8A or higher
- 220 to 240 V: 1.2 A or higher

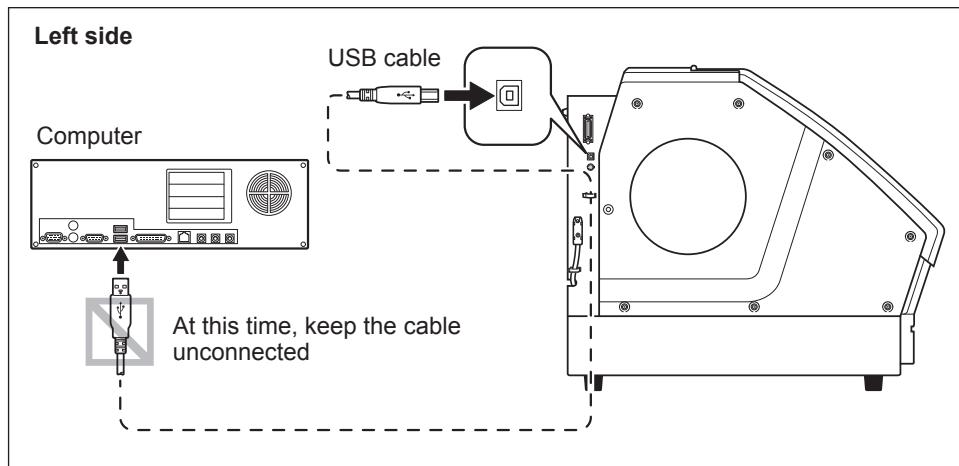


Connecting to the Computer

You use a USB cable to connect the machine and the computer. At this time, however, the connection to the computer must not be made yet. You make the connection to the computer when you install the Windows-based driver.

☞ P. 41, "Installing the Windows-based Driver"

- Be sure to make the connection according to the instructions on page 41, "Installing the Windows-based Driver." Making the connection without doing so may cause driver installation to fail and make use impossible.
- For the USB cable, use the included cable.
- Never use a USB hub.



2-4 Installing and Setting Up the Software

System Requirements

Operating system	Windows XP/Vista/7(32,64 bit edition)
CPU	The minimum required CPU for the operating system
Memory	The minimum amount of required RAM for the operating system
Optical drive	CD-ROM drive
Video card and monitor	At least 256 colors with a resolution of 1,024 x 768 or more recommended)

For the latest information, see the Roland DG Corp. website (<http://www.rolanddg.com>).

The Software You Can Install and Set Up

VPanel for DWX-30	This is a dedicated program for controlling the modeling machine. You operate the modeling machine and make various settings using this program.
Windows driver (DWX-30 driver)	This is a Windows-based driver required for sending data from a computer to the machine.

Installing the Windows-based Driver

Notice

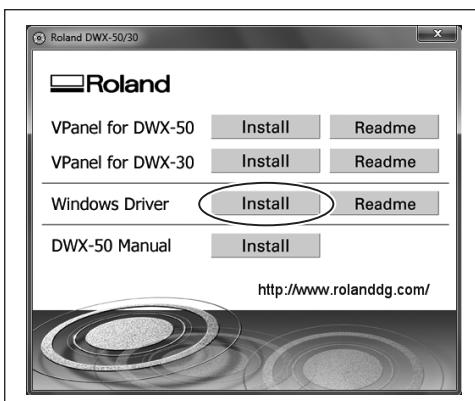
Keep machine and the computer unconnected until you carry out this installation operation. Failure to follow the correct procedure may make installation impossible.

☞ P. 88, "Installation is impossible"

Procedure

- ① Before you start installation and setup, make sure the USB cable is not connected.
- ② Log on to Windows as "Administrator."
- ③ Insert the Roland Software Package CD-ROM into the computer.
(Windows Vista or 7 : When the automatic playback window appears, click [Run menu. exe].)
The setup menu appears automatically.

4

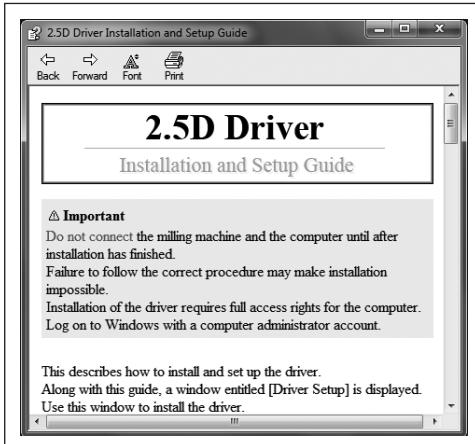


Setup menu

Click [Install] of "Windows Driver".

An Installation and Setup Guide matched to the basic software on your computer is displayed.

5



Installation and Setup Guide

Follow the instructions in the Installation and Setup Guide to finish installing.

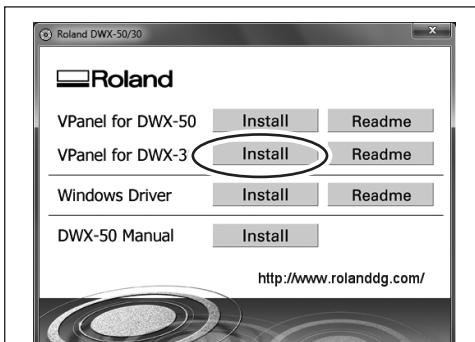
After installation is completed, the window for the setup menu appears again. Go on to "Installing and Setting Up VPanel" on the following page.

Installing and Setting Up VPanel

Procedure

1 Display the window for the setup menu.

2



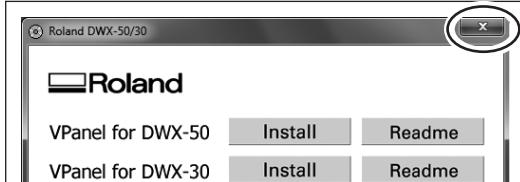
Setup menu

Click [Install] of "VPanel for DWX-30."

③ When the screen shown in the figure appears, click [Next], then follow the prompts to install and set up the program.

(Windows Vista or 7: When the [User Account Control] appears, click [Allow] or [Yes].)

④



When all installation finishes, click  on the setup menu.

⑤ Remove the CD-ROM from the CD-ROM drive.

This completes installation of VPanel.

2-5 Connecting Multiple Units

How to Connect Multiple Units

Up to four machines can be connected to a single computer. When more than one machine is connected, each machine needs to be identified on VPanel. An ID (A, B, C, and D) must be assigned to each machine to make the setting for each machine.

In the initial setting, "A" is assigned as an ID of the machine. This section describes how to set up the IDs of the second machine and after he setting assuming that the ID of the first machine is set up as "A".

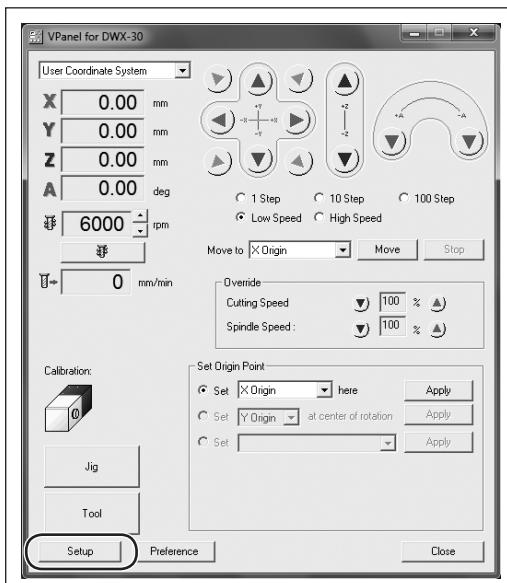
☞ P. 41, "Installing the Windows-based Driver"

Procedure

- ① Turn off the main power of the connected machine, and then disconnect the USB cable from the computer.
- ② Switch on the main power and the sub power of the machine connected newly, and connect the USB cable to a computer.
 - Make the connection setting of the machines one by one. Be sure to connect only the machine of which the setting is made. If you connect the machines with a same ID at the same time, the computer might shut down.
 - For the USB cable, use the included cable.
 - Be sure to refrain from using a USB hub. If a USB hub is used, there is a possibility that the machine cannot be connected.
- ③ Go to [Start Menu], and click [All Programs] (or [Program]) - [Roland VPanel for DWX-30] - [VPanel].

The VPanel program starts.

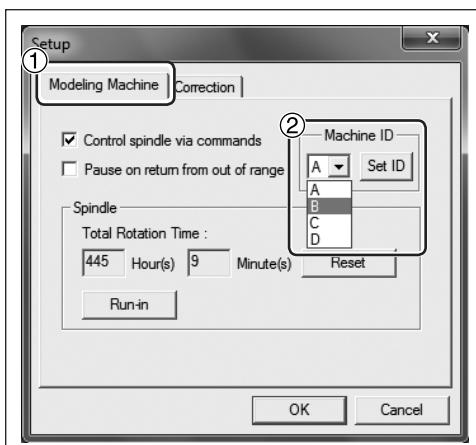
- ④



Click [Setup].

The [Setup] window appears.

5



① Click the [Modeling Machine] tab.

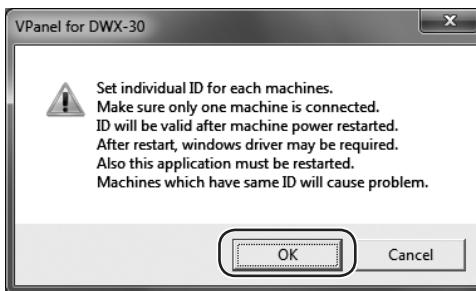
② Select any unused ID in [Machine ID], and press [Set ID].

Assign an ID to identify the machine on VPanel. Since A is assigned to the first machine, be sure to select B, C, or D.

IMPORTANT!

Do not assign a same ID. If you connect the machines with the same ID at the same time, the computer might shut down.

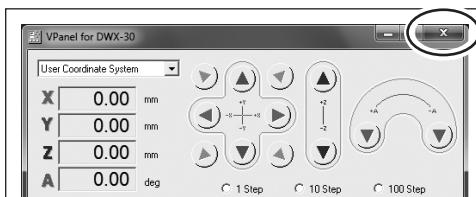
6



Read the message displayed on the screen as shown in the left, and click [OK].

When the message, "Operation is complete," appears, click [OK].

7



Exit VPanel.

Click .

8 Once switch off the power of the machine, and then switch on the main power and the sub power again.

The assigned ID is recognized by the machine. If the ID is assigned for the first time, a corresponding driver is required.

Windows 7: The required driver is automatically created.

Windows Vista/XP: A message to prompt the user to install the Windows driver is displayed. Install the driver in accordance with the message.

☞ P.41, "Installing the Windows-based Driver"

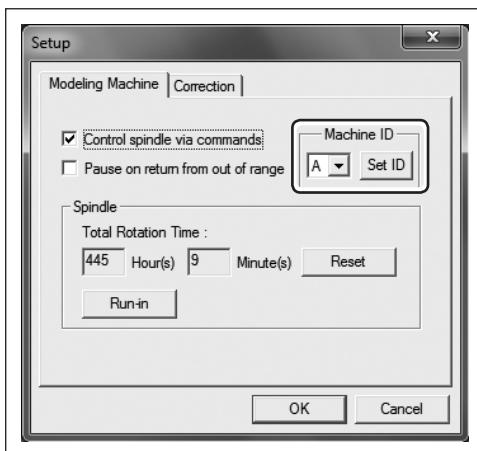
9 Restart VPanel.

After VPanel is restarted, the assigned ID is enabled,

You can connect all the machines of which the setting has been done to the computer by USB cables. At this point, if you connect the machines with a same ID at the same time, the computer might shut down.

10 ① When you connect the third and fourth machines, turn off the power of all the machines, disconnect the USB cables from the computer, and exit "VPanel."
② Repeat the above steps ② to ⑧.

To confirm the set ID



Click the [Setup] in VPanel and confirm [Machine ID] in the [Modeling Machine] tab.



Point

Select an ID and press [Set ID], and the ID is changed. Note that the changed ID is enabled if you restart the machine with this setting.

Select a machine to use

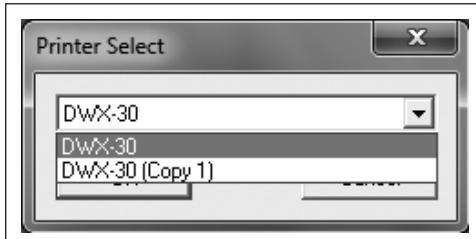
Up to four machines can be connected to a single computer but parallel use is unavailable. So select a machine to use.

Procedure

① Go to [Start Menu], and click [All Programs] (or [Program]) - [Roland VPanel for DWX-30] - [VPanel].

The [Printer Select] window appears

②



① Select a machine to use.

If the machine name is not changed, "DWX-30 (Copy 1)" is displayed. (The third machine is displayed as "DWX-30 (Copy 2).")

② Click [OK].

The VPanel program starts.

To change a machine to use

Quit VPanel. Then repeat the steps ① and ② to select a machine to change.



Point

To change the name of the machine which has been set, change the name of the installed printer (the machine you are using).

① Windows 7: From [Start] menu, click [Control Panel] ⇒ [Hardware and Sound] ⇒ [Devices and Printers].

Windows Vista: From [Start] menu, click [Control Panel] ⇒ [Hardware and Sound] ⇒ [Printers].

Windows XP: From [Start] menu, click [Control Panel] ⇒ [Printers and Other Hardware] ⇒ [Printers and Faxes].

② Select the name of driver of the machine (Printer) you are using, and change the name.

③ Restart VPanel.

The name which has been changed appears on the top window.

Chapter 3

Basic Operation

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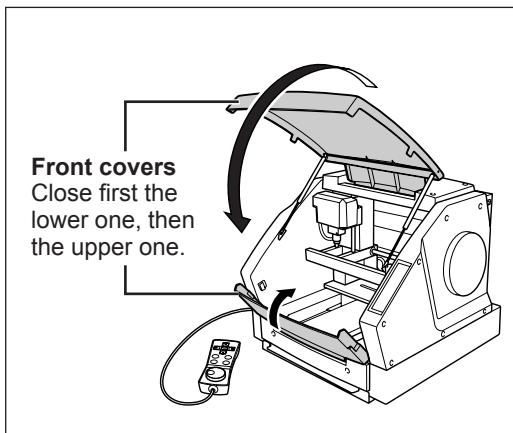
3-1 Starting and Quitting

How to Start the Machine

Follow the procedure below to start the machine. When startup is complete, the machine is ready for use.

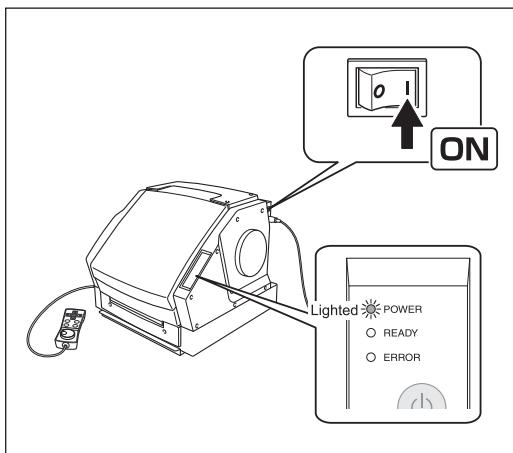
Procedure

1



Close the front covers.

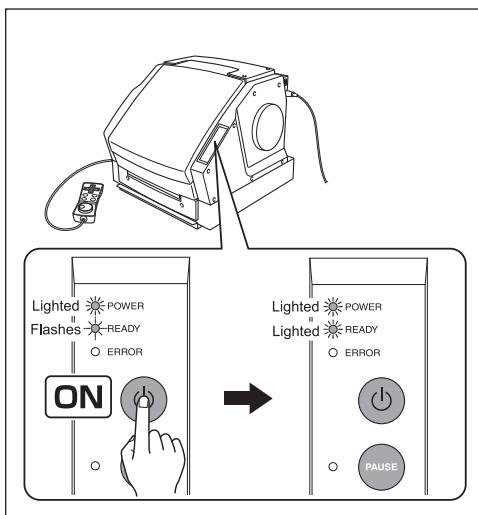
2



Switch on the main power.

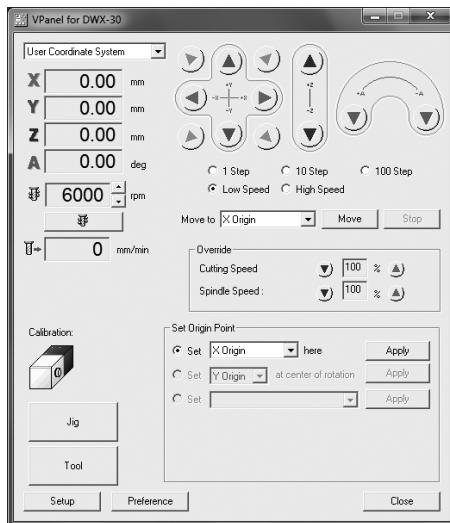
The POWER light comes on.

③

**Switch on the sub power.**

The spindle head, the table and the main clamp move and the READY lamp flashes. This operation is called initialization. When the READY light stops flashing and remains steadily lighted, initialization is complete.

④

**On the computer, start VPanel.**

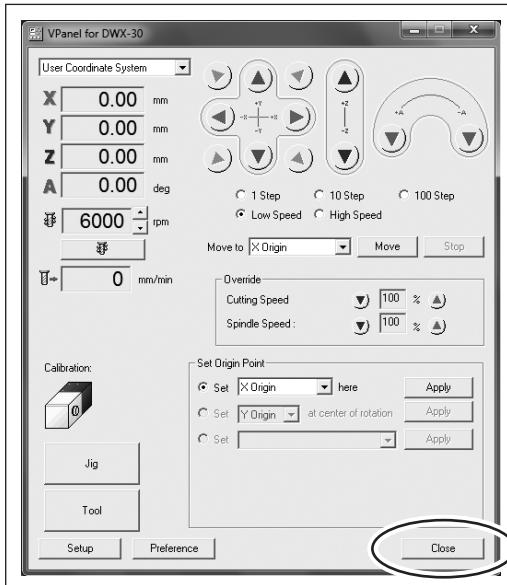
From the [Start] menu, click [All Programs] (or [Program]) - [Roland VPanel for DWX-30] - [VPanel].

The window shown in the figure appears. Startup of the machine is complete.

How to Shut down

Procedure

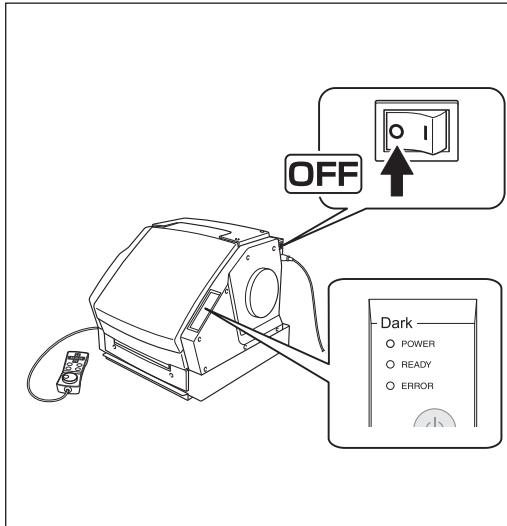
1



On the computer, quit VPanel.

Click [Close].

2



Switch off the main power.

The POWER light and READY light go dark.

Emergency Stop Due to Opening or Closing the Front Cover

To ensure safety, opening a front cover during cutting or spindle rotation causes an emergency stop to occur. The ERROR light on the cutting machine flashes and VPanel displays the message shown below. Operation cannot be resumed by closing the front cover. To resume, follow the on-screen instructions to restart.

☞ P. 50, "Starting and Quitting"

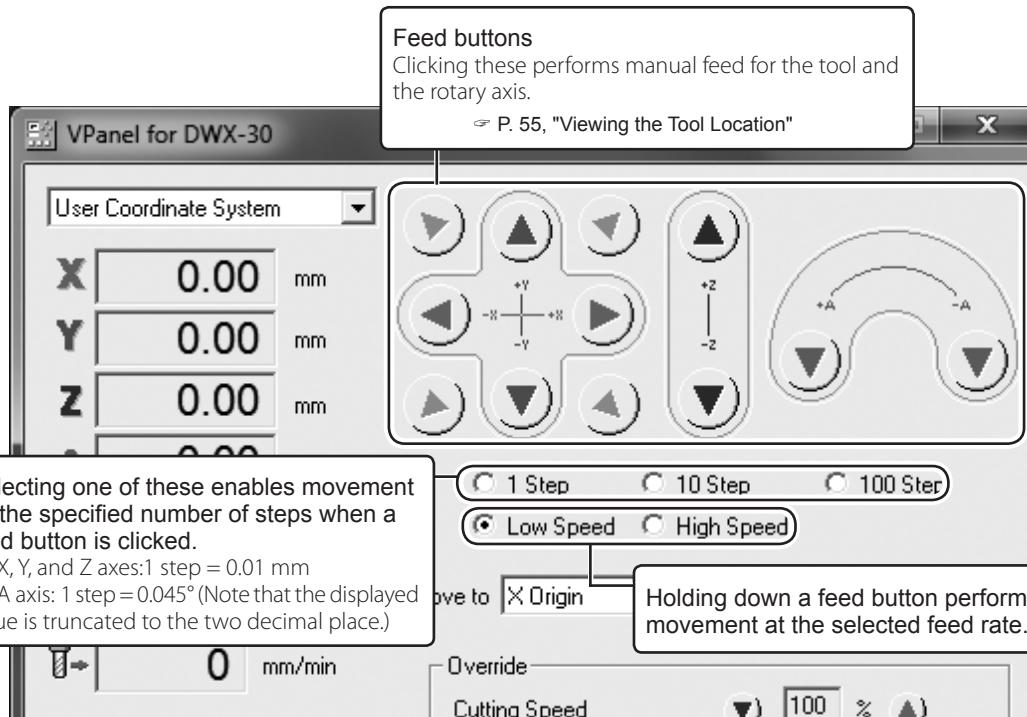


Clicking [OK] at this window makes the window disappear, but the window reappears until the cutting machine's power is switched off.

3-2 Moving the Tool

Manual Feed

Moving the tool manually is called "manual feed," and you can accomplish this using the feed buttons in VPanel.



Restriction on Manual Feed of the A Axis

Manual feed of the A axis is available only when the table is located at the "VIEW position." If you want to perform manual feed of the A axis, move the table to the "VIEW position" first.

☞ P. 57, "Moving to the VIEW Position"

Table Movement When a Y-axis Feed Button Is Clicked

Under the default setting, Y-axis movement assumes a direction of tool movement relative to the object being cut. This means that clicking a Y-axis feed button makes the table move in a different direction from what the arrow indicates.

Note: Manual feed cannot be performed while a cutting operation is in progress.

Operation Using the Handy Panel

You can also perform this operation using the handy panel.

☞ P. 62, "Using the Handy Panel"

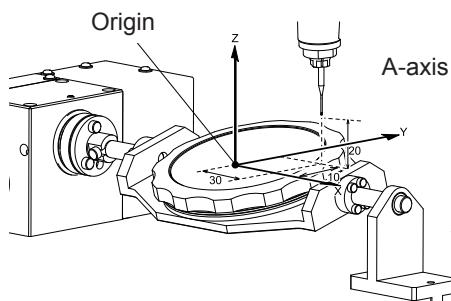
Viewing the Tool Location

Coordinate View

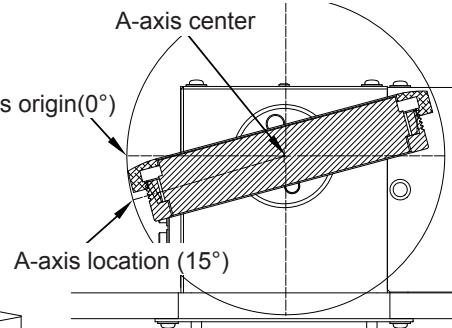
VPanel displays the present location of the tool as numerical values. The numerical values that indicate the location of the tool are called "coordinates," and the starting point for the coordinates is called the "origin point," or sometimes just the "origin." The following figure shows a location that is shifted from the origin point by 30 millimeters along the X axis, by 10 millimeters along the Y axis, by 20 millimeters along the Z axis, and by 15 degrees along the A axis. This X-axis distance is called the "X-axis coordinate" (or sometimes just the "X coordinate"), the Y- and Z-axis distances are similarly called the "Y-axis coordinate" and the "Z-axis coordinate," and the angle of rotation along the A axis is called the "A-axis coordinate." The distances or the angle from the origin point for the respective axes to the tool are therefore the corresponding coordinate values.

This position is expressed as "X = 30 mm, Y = 10 mm, Z = 20 mm, and A = 15 deg."

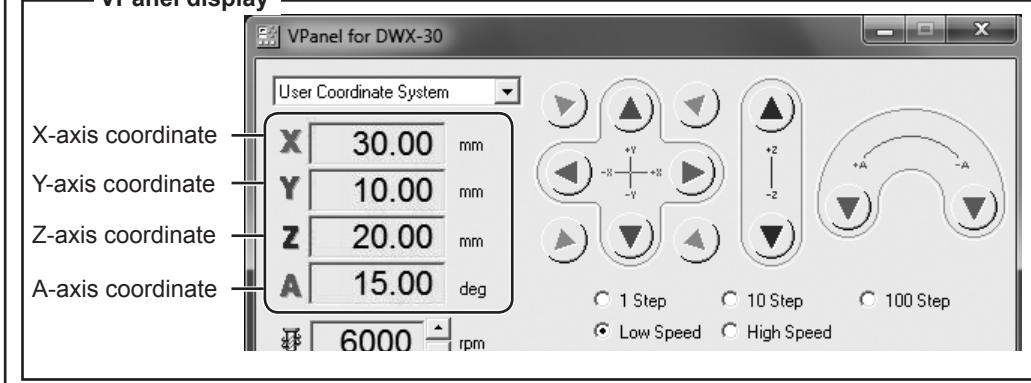
Locations of the X, Y, and Z axes



Location of the A axis



VPanel display



About the A-axis Coordinate

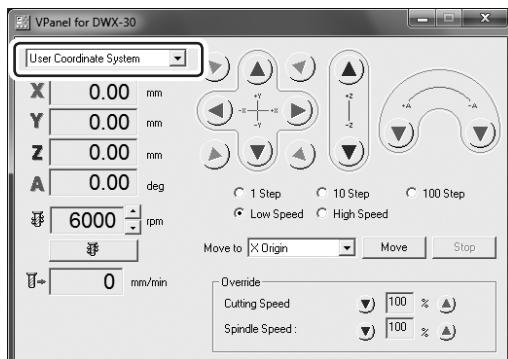
The location of the A axis is indicated as an angle of rotation. In this way it differs from how the X, Y, and Z axes are indicated. Despite this difference between angles and distances, in other respects it is treated the same as X-, Y-, and Z-axis coordinates. The unit of measurement used to indicate A-axis coordinates is the degree, and this cannot be changed.

Selection of the Coordinate System

On this machine, you can switch the display between the following two coordinate systems.

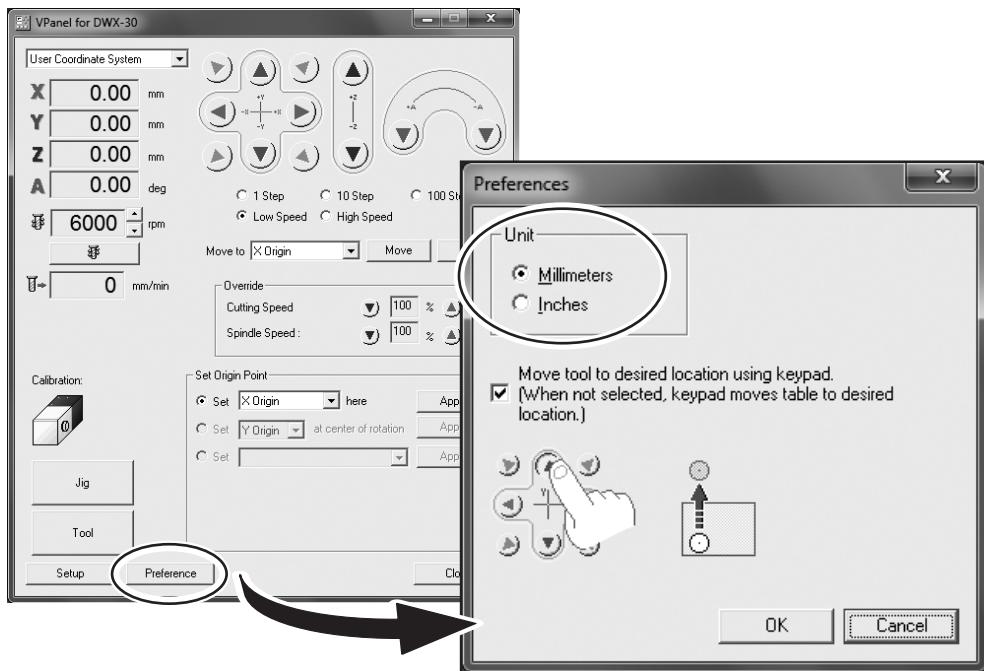
- User Coordinate System: This is a coordinate system in which the location of the origin point can be freely changed.
- Machine Coordinate System: This is a machine-specific coordinate system in which the location of the origin point is fixed and cannot be changed.

For the operations on this machine, it may be a good idea to leave the selection at "User coordinate system" at all times. When you want to know the absolute location of the tool on this machine, select the machine coordinate system.

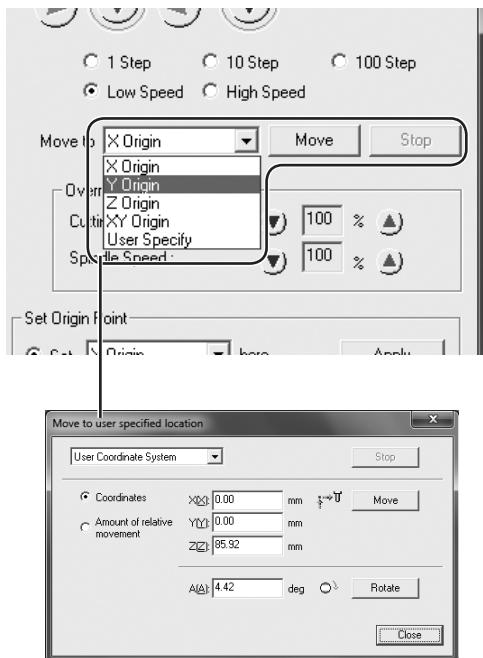


Changing the Unit of Measurement for Display

You can switch the unit of measurement used for displaying coordinates between millimeters and inches. Click the [Preference], then select the unit.



Moving to a Specific Position



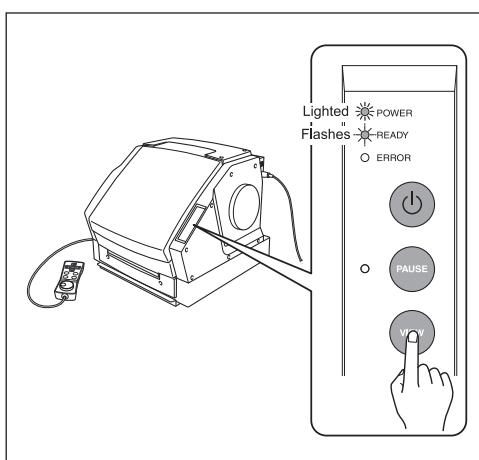
Selecting a destination from the list and clicking the [Move] button makes the tool move rapidly to the selected location. Clicking the [Stop] button stops movement.

Note: Movement to "Rotation Center Y" is possible only when detection of the jig location has been performed and the center of the axis of rotation has been established.

When "User Specify" Is Selected

Clicking the [Move] button makes the window shown at left appear. You can specify the location of the movement destination by entering the values you want for "Coordinates" or "Amount of relative movement."

Moving to the VIEW Position

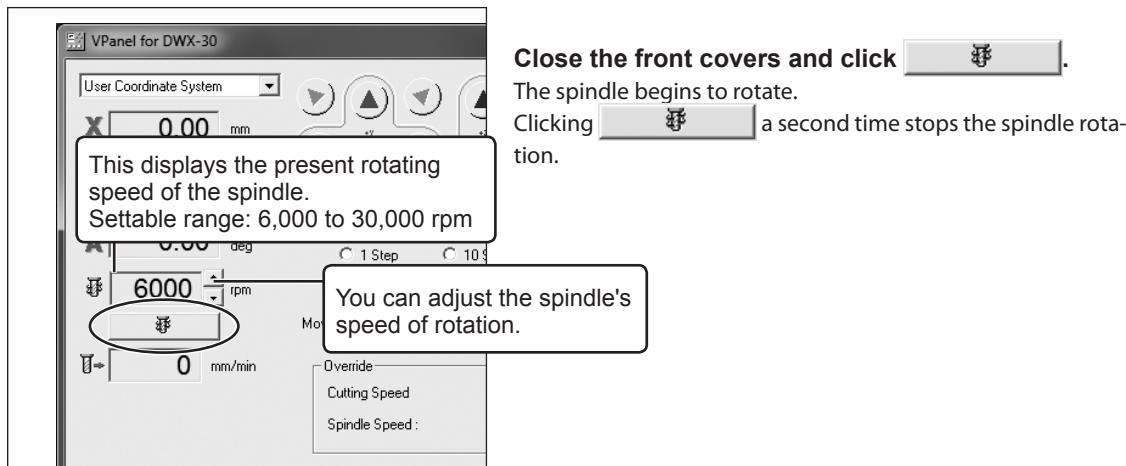


Press the VIEW button on the built-in panel.

The tool moves to the highest position, after which the table moves to the front of the machine. This location is called the "VIEW position." You use this when performing such operations as attaching or detaching a tool, installing a jig, or mounting a workpiece. The READY light flashes while movement is in progress. When the READY light stops flashing and remains steadily lighted, movement is complete. This operation cannot be performed while a front cover is open. Close the front cover, then perform the operation.

3-3 Starting and Stopping Spindle Rotation

Starting or Stopping the Spindle



Setting the Spindle Speed During Cutting

The spindle's rotating speed during cutting operations is controlled by commands in the cutting data sent from the computer, and so the setting made in VPanel is ignored. Note, however, that the setting made with VPanel is used when the cutting data contains no command specifying the spindle speed, or if the setting is made again in VPanel while cutting is in progress. You can also use VPanel's override feature to adjust the speed of spindle rotation during cutting.

☞ P. 80, "Override"

Operation Using the Handy Panel

You can start and stop spindle rotation using the handy panel. Changing the speed of rotation using the handy panel is not possible.

☞ P. 62, "Using the Handy Panel"

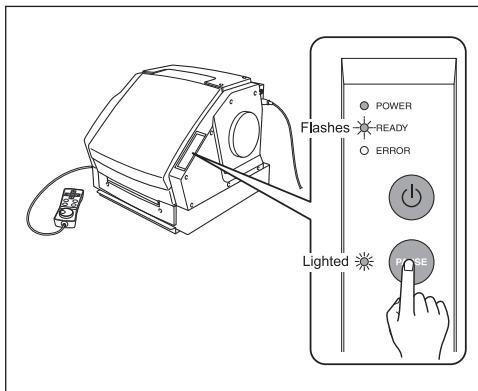
3-4 Pausing and Quitting Cutting

Pausing and Resuming Operation

This operation pauses cutting. You perform it using the built-in panel. This also makes it possible to resume cutting at the paused position after an operation such as moving the tool to check the status of the workpiece.

Procedure

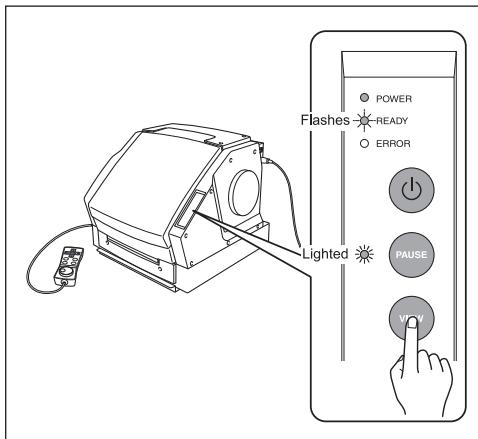
1



Press the PAUSE button during cutting.

Tool movement pauses. The PAUSE light comes on and the READY light flashes. Rotation of the spindle does not stop at this time.

2

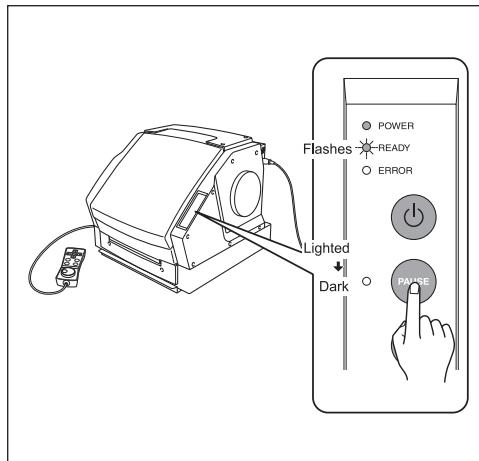


Press the VIEW button.

Rotation of the spindle stops, the table moves to the front of the machine (the VIEW position). The READY light flashes while the tool and table are moving.

This operation cannot be performed while a front cover is open. Close the front cover, then perform the operation.

3



Hold down the PAUSE button for one second or longer.

The tool returns to the position where operation was paused, and cutting resumes. After the tool starts moving, the READY light flashes until cutting resumes. After cutting resumes, the PAUSE light goes dark.

This operation cannot be performed while a front cover is open. Close the front cover, then perform the operation.

Important !

Before opening the front cover while operation is paused, first make sure that rotation of the spindle is stopped. For safety, opening the front cover while the spindle is turning makes the machine perform an emergency stop. Be sure to note that if this happens, it's necessary to quit the operation and start over from the beginning.

☞ P. 53, "Emergency Stop Due to Opening or Closing the Front Cover"

Other Operations Possible While Paused

VPanel

- Tool movement using manual feed
☞ P. 54, "Manual Feed"
- Starting or stopping spindle rotation
☞ P. 58, "Starting and Stopping Spindle Rotation"
- Changing the spindle speed
☞ P. 80, "Override"
- Adjusting the tool feed rate
☞ P. 80, "Override"

Handy Panel

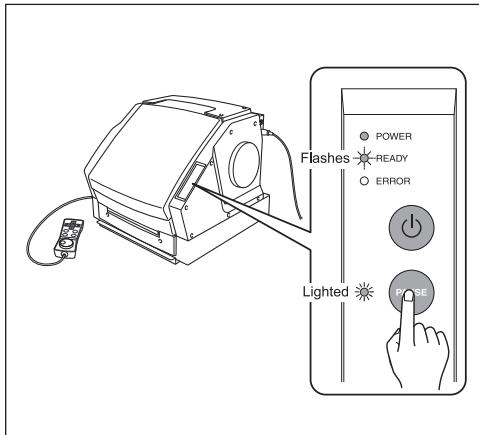
- Starting or stopping spindle rotation
☞ P. 62, "Using the Handy Panel"
- Moving the tool
☞ P. 62, "Using the Handy Panel"

Quitting Cutting

This stops cutting through operation using the built-in panel. Unlike pausing operation, cutting cannot be resumed.

Procedure

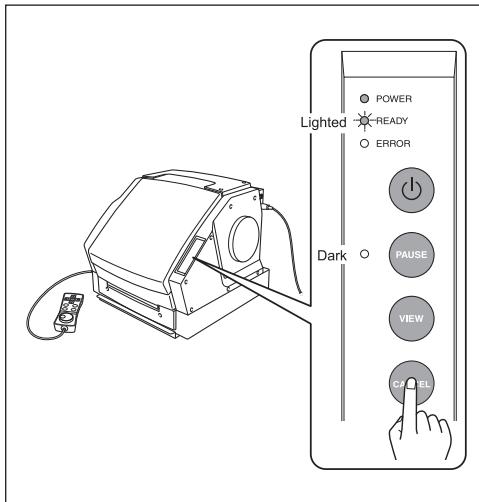
1



Press the PAUSE button during cutting.

Movement of the tool pauses. The PAUSE light comes on and the READY light flashes. Rotation of the spindle does not stop at this time.

2



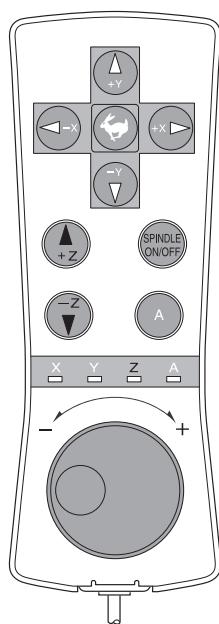
Hold down the CANCEL button for two seconds or longer.

When the PAUSE light goes dark and the READY light is lighted, cutting has completed stopping. Rotation of the spindle stops at this time.

3-5 Handy Panel

Using the Handy Panel

This is an operation panel connected to the cutting machine by a cable. You can use it to perform such operations as moving the tool or switching spindle rotation on and off. This makes it a handy tool when you want to perform operations while monitoring the material or the tool position from a location close to the machine.



X-, Y-, and Z-axis movement buttons

These are the respective movement buttons for the X, Y, and Z axes. Pressing just these buttons performs slow movement.

Y-axis movement assumes a direction of tool movement relative to the object being cut. This means that pressing or makes the table move in the direction opposite to what the arrow indicates (: movement toward the back of the machine, : movement toward the front of the machine).



A-axis button

Pressing this button makes the movement axis change to the A axis. Pressing this button does not actually rotate the A axis. To rotate the A axis, you press this button, then turn the dial.

Note that manual feed of the A axis is available only when the table is located at the "VIEW position."



Feed button

Pressing a movement button or turning the dial while holding down this button performs rapid movement.



Spindle button

Holding this down for one second or longer while the spindle is stopped sounds an audible beep and starts spindle rotation. Pressing this during spindle rotation sounds a beep and stops rotation.



LEDs

This indicates the axis of movement using the handy panel. Pressing the movement button for an axis makes the corresponding LED light up.



Dial

Turning this moves the selected axis (the axis whose LED is illuminated).

Operating the Handy Panel and VPanel at the Same Time

Never operate the handy panel and VPanel simultaneously. Operation using VPanel becomes impossible while the handy panel is being used.

Chapter 4

Performing Cutting

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4-1 Before Starting Operations

Spindle Run-in (Warm-up)

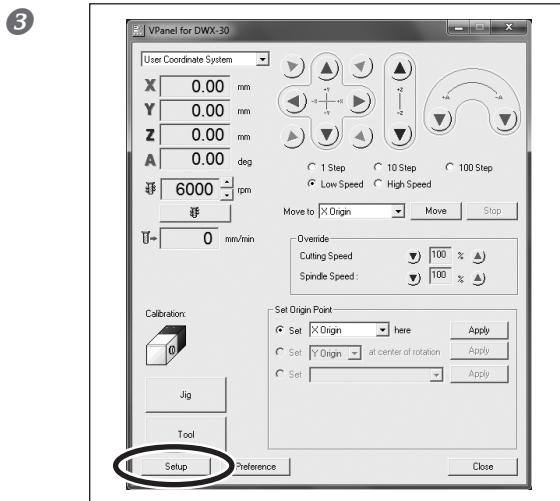
In any of the following cases, perform run-in (warm-up) operation for the spindle. Failure to do so may result in unstable spindle rotation.

- When using for the first time after purchase
- After moving the machine and reinstalling it at a different location
- After replacing the spindle unit
- When using in a low-temperature environment

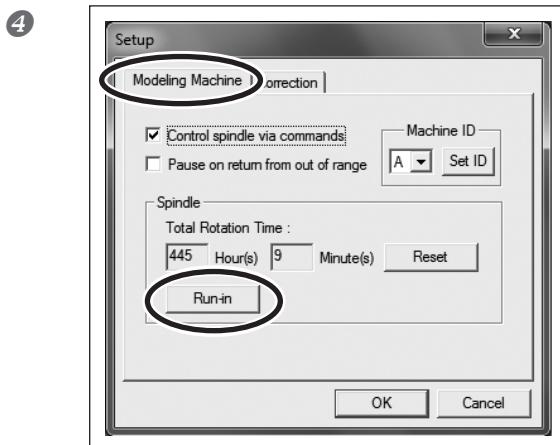
Spindle Run-in takes maximum one hour.

Procedure

- ① Close the front covers.
- ② Go to [Start Menu], and click [All Programs] (or [Program]) - [Roland VPanel for DWX-30] - [VPanel].
The VPanel program starts.



Click [Setup].
The [Setup] window appears.



① Click [Modeling Machine] tab.
② Click [Run-in].
The run-in operation starts.

Detection of the Jig Location

⚠WARNING

Never inadvertently touch the computer or handy panel while performing this task.

Unintended operation of the machine may result in injury.

⚠WARNING

Securely fasten the jig in place. After securing in place, make sure no wrenches or other articles have inadvertently been left behind.

Otherwise such articles may be thrown from the machine with force, posing a risk of injury.

Carry out "Detection of the jib location" in order to determine the reference position for cutting.

Important!

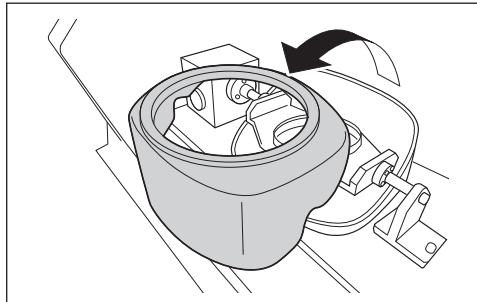
- Detecting the location of the jig is a necessary procedure for determining the reference position for cutting. Be sure to carry this out when you use the machine for the first time after purchase or whenever you change the jig.
- Make sure the clamp, detection pin, tool sensor, and attachment for detection are clean and free of dust, chips, and the like. Any buildup on these may prevent correct response by the sensor and make correct detection of the jig location impossible. In some cases, such buildup may cause breakage of the detection pin, resulting in injury or damage.

Procedure

1 Close the front covers and press the VIEW button.

☞ P. 57, "Moving to the VIEW Position"

2

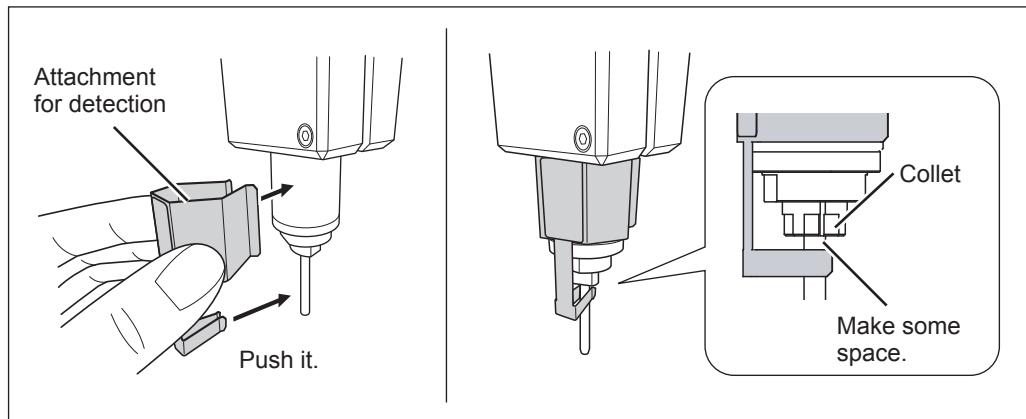


Open the front covers and remove the dust collection capsule.

3 Install the detection pin.

☞ P. 76, "Installing a Tool"

4 Install the attachment for detection on the detection pin.



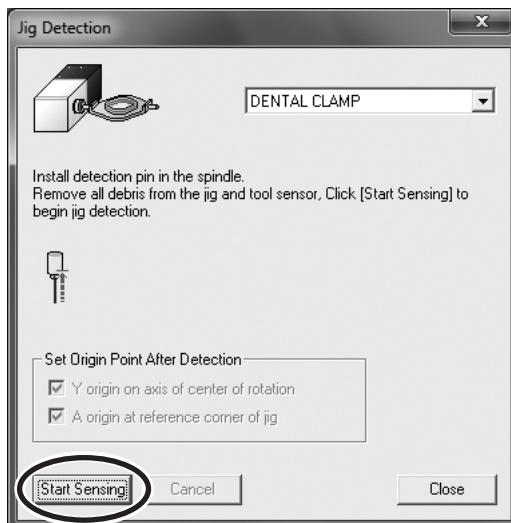
5



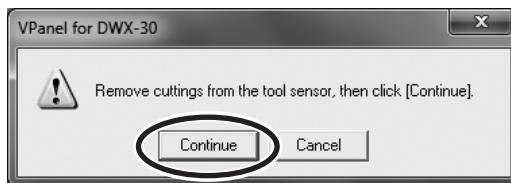
Close the front covers, then in VPanel, click [Jig].

The [Jig Detection] window appears.

6



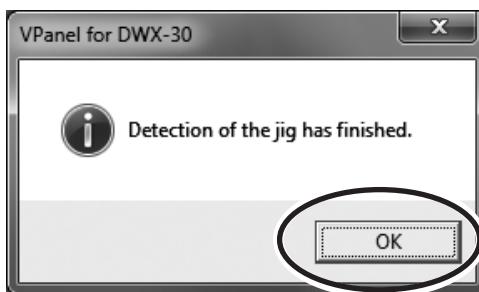
Click [Start Sensing].



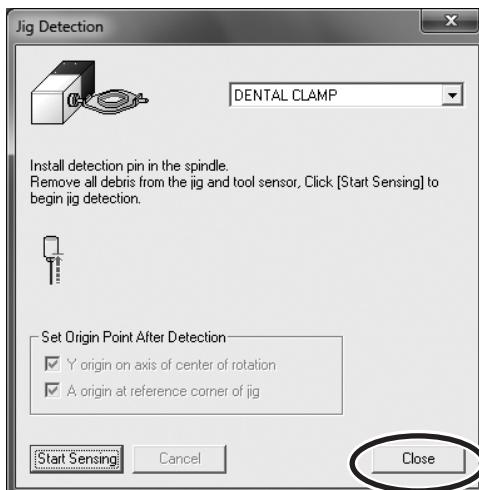
Make sure no buildup of cutting waste is present on the tool sensor, then click [Continue].

Detection of the location of the jig starts.

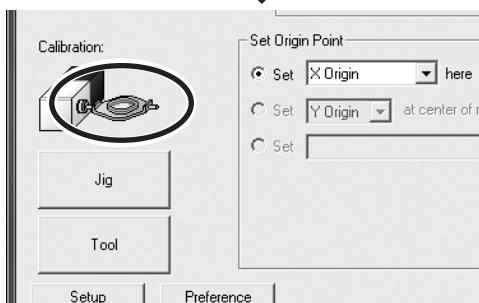
7



When the window shown in the figure appears, click [OK].

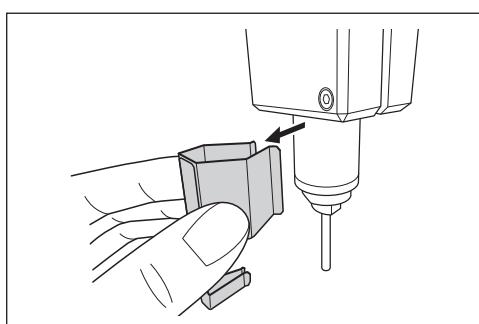


Click [Close].



An illustration of the clamp is displayed in "Calibration" of VPanel.

8



Remove the attachment for detection.

Detection of the jig location is finished.

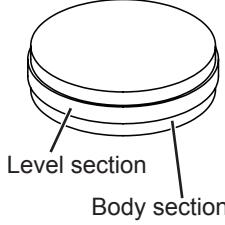
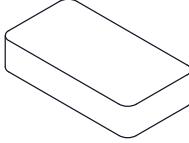
4-2 Preparation for and Performing Cutting

Usable Workpieces

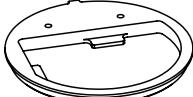
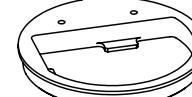
Type of Workpieces

Modeling wax, Zirconia (pre-sintered)

Type (shape) and size of workpiece

Type (Shape) of Workpiece		Size (mm)	
		External diameter, or width x depth	Height
Disc without levels		diameter 98 to 100	10 to 14
Disc with levels		Level section: diameter 98 to 100 Body section: diameter 95	Level section: 10 Body section: 12 to 26
Block		40x75	12 to 16 18 to 22 24 to 26

Names of Jigs

Main Clamp	Sub Clamp		
Main Clamp*	Cap*	Spacer	
			
Sub Clamp			
Clamp for Block Workpiece (The height of a workpiece to be used is displayed on the surface of the clamp.)			
C-1 For 12 to 16/ 18 to 22mm	C-2 For 12 to 16/ 18 to 22mm	D-1 For 24 to 26mm	D-2 For 24 to 26mm
			

*NOTE: The modeling machine is shipped from the factory with the sub clamp installed on the main clamp.

Sub Clamp Selection

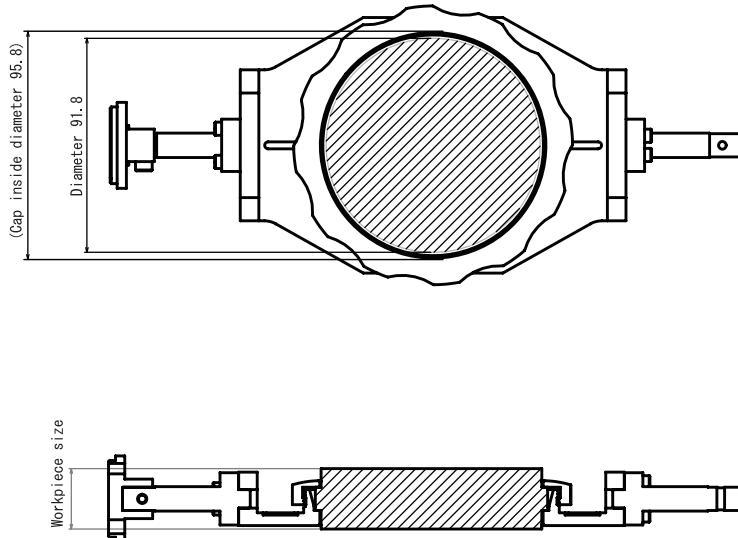
Select the sub clamp in accordance with the type and size of the workpiece you want to use. Use an appropriate sub clamp with “✓” in the table below.

Type of Work-piece (shape)	Size of Workpiece (mm)		Sub-clamp		
			Cap	Spacer	Clamp for block
	External diameter/ width × depth	Height		C-1,C-2	D-1,D-2
Disc with-out levels	diameter 98 to 100	10 to 14	✓		
Disc with levels	Level section: diameter 98 to 100 Body section: diameter 95	12 to 26	✓		
Block	40 x 75	12 to 16	✓	✓	✓
		18 to 22	✓		✓
		24 to 26	✓		✓

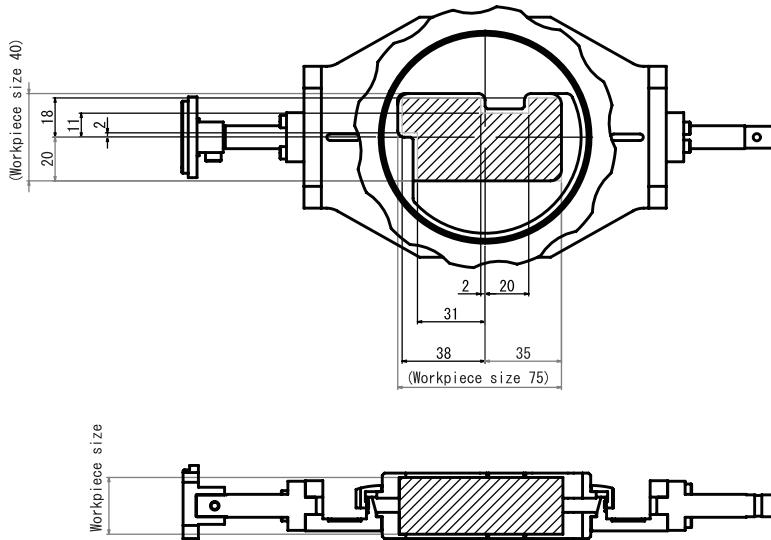
Cuttable Area

The size of the workpiece that can be mounted in the jig and the actual cuttable area are different. Refer to the figure below to determine the size of the workpiece to use and the size of the model you're producing.

In the case of a Disc workpiece



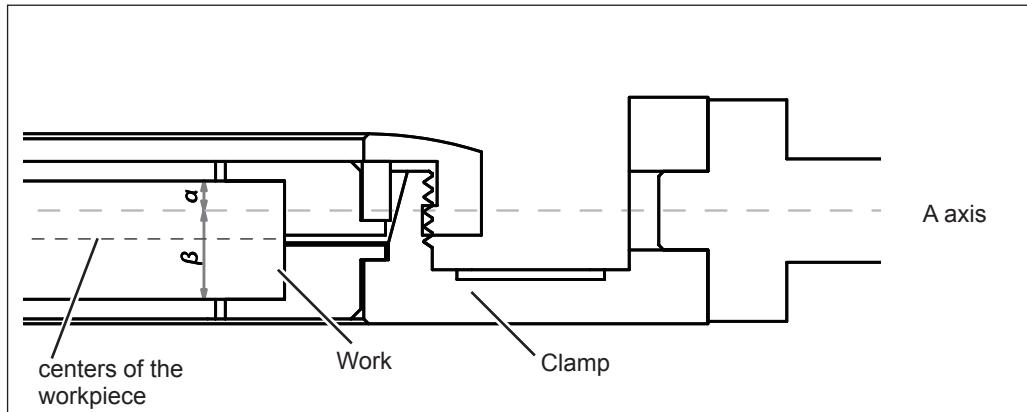
In the case of a Block workpiece



Misalignment of centers of workpiece height and A axis (Offset)

Create a cutting data with caution, when you're using a disc workpiece without levels or a block workpiece, since the centers of the workpiece set on the clamp and A axis are misaligned.

*NOTE: When you're using a disc workpiece with levels, the centers of the workpiece set on the clamp and A axis are aligned at all times.



The following table indicates the misalignment of centers of workpiece height and A axis in each workpiece size. The values of α and β in the table correspond to " α " and " β " on the above figure. Create a cutting data referring to this table.

Workpiece Type (shape)	Workpiece Size (mm)		α	β
	External diameter/ width x depth	Height		
Disc with- out levels	diameter 98 to 100	10	5	5
		12	7	5
		14	9	5
Block	40 x 75	12	3	9
		14	5	9
		16	7	9
		18	9	9
		20	11	9
		22	13	9
		24	11	13
		26	13	13

Mounting the Workpiece

Procedure

- 1 Close the front covers and press the VIEW button.

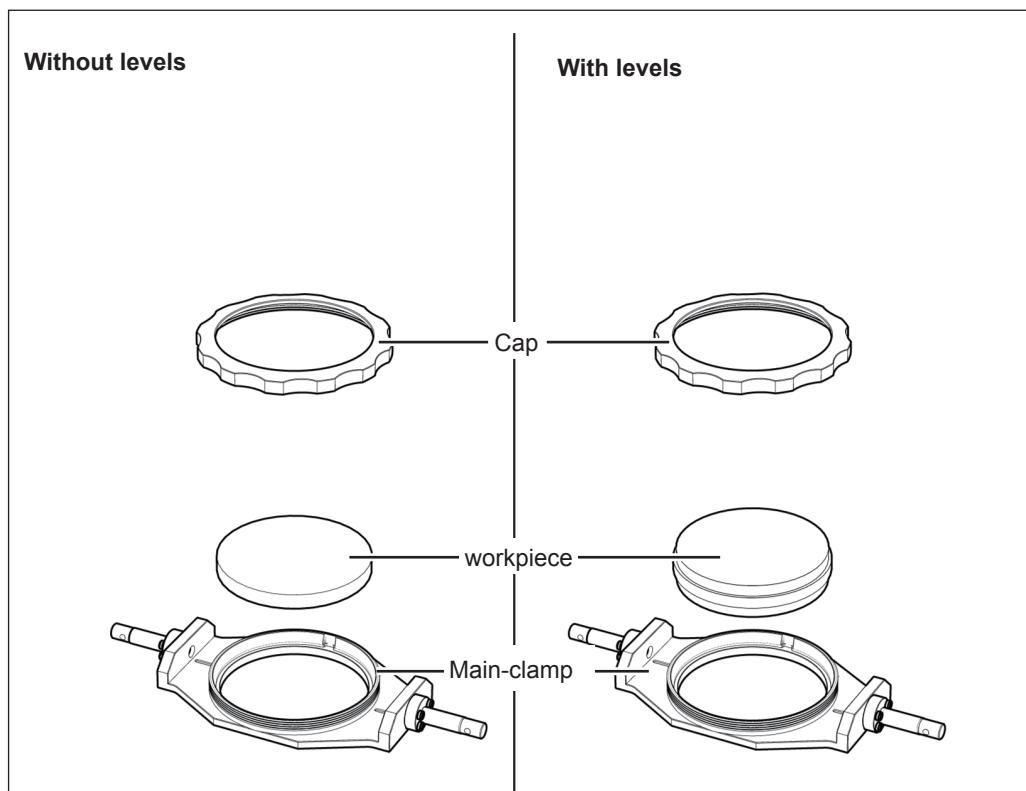
☞ P. 57, Moving to the VIEW Position

- 2 Remove the cover of the dust collection capsule if it is attached.

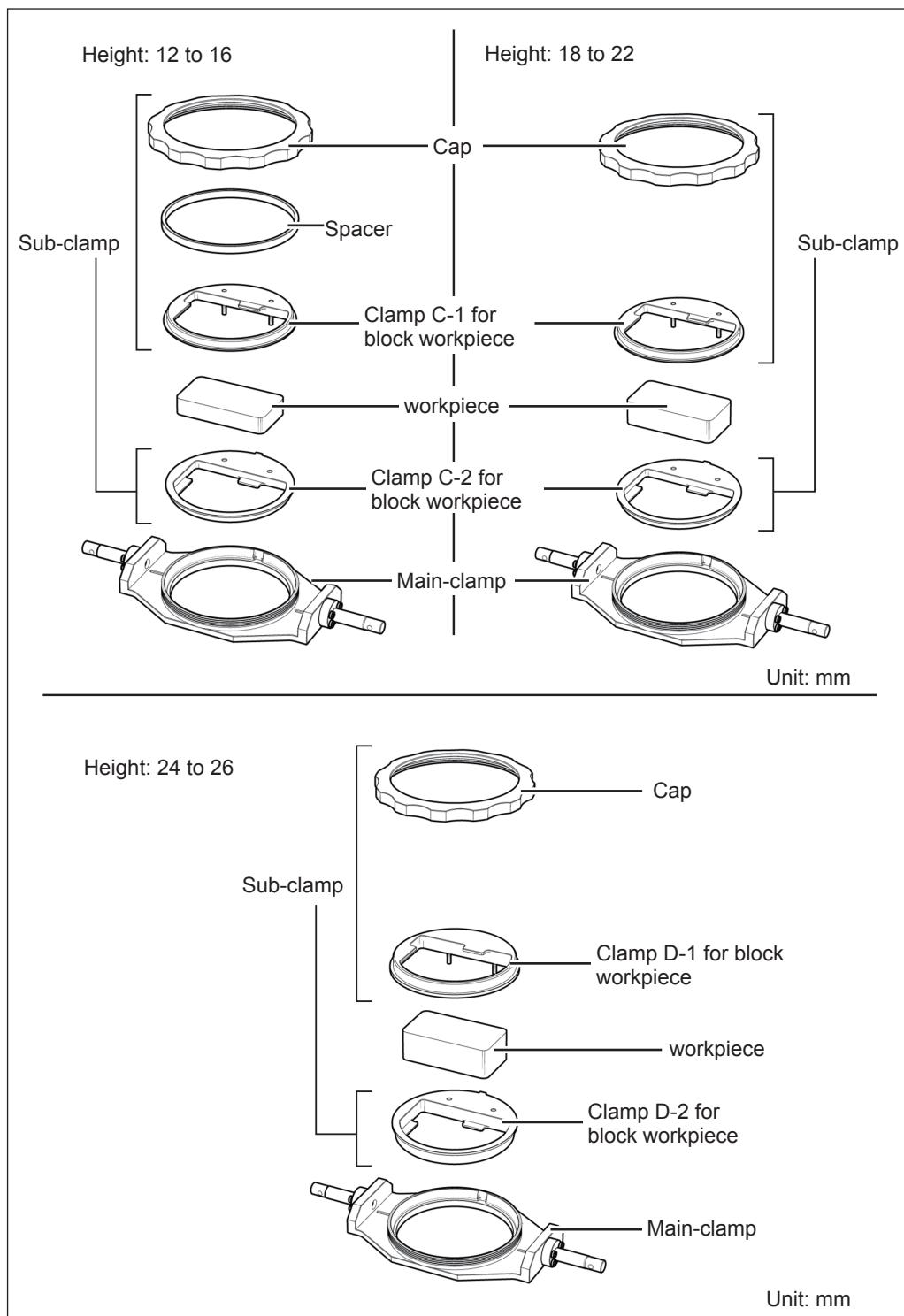
- 3 Mount the workpiece on the main-clamp.

The sub clamp (s) varies according to the type of the workpiece. Mount according to the order shown in the figure and tighten the cap at the end.

In the case of a Disc workpiece



In the case of a Block workpiece



Installing a Tool

This describes how to install a tool for cutting. You can use the same method to install a detection pin.

*NOTE: The tools are optional items.

Important Notes When Selecting a Tool

Select a tool giving careful attention to such matters as the length of the tool and the shape of its tip.

⚠ WARNING

Never inadvertently touch the computer or handy panel while performing this task.

Unintended operation of the machine may result in injury.

⚠ WARNING

Securely fasten the cutting tool and workpiece in place. After securing in place, make sure no wrenches or other articles have inadvertently been left behind.

Otherwise such articles may be thrown from the machine with force, posing a risk of injury.

⚠ CAUTION

Caution: cutting tool.

The cutting tool is sharp. To avoid injury, exercise caution.

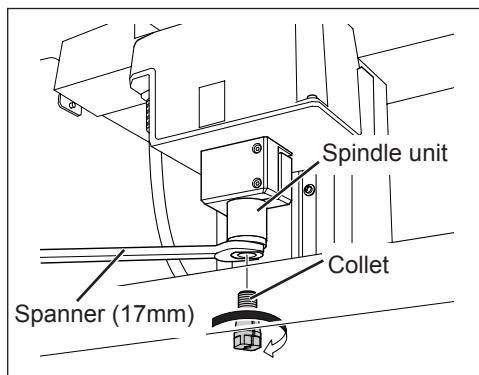
Procedure

- 1 Close the front covers and press the VIEW button.**

☞ P. 57, "Moving to the VIEW Position"

- 2 When movement to the VIEW position is complete, open the front covers.**

3

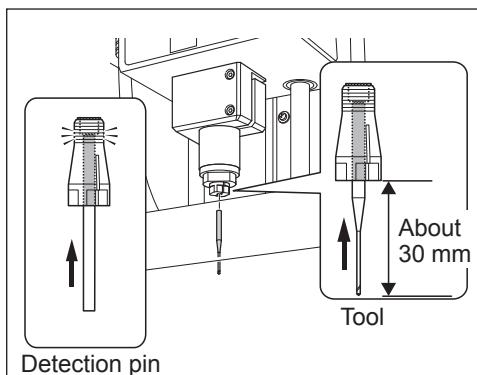


Loosely tighten the collet.

Secure the spindle unit in place using the 17-mm spanner, then screw in the collet until it is finger-tight.

To mount the detection pin, use the collet of diameter 4 mm.

④



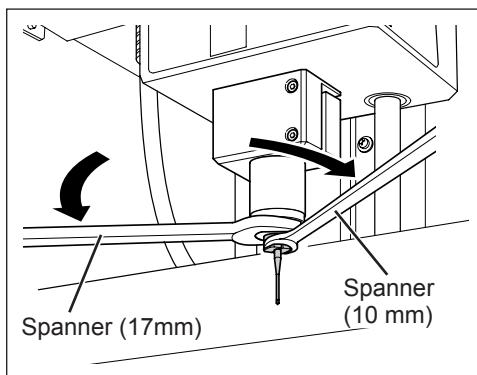
Insert the tool (optionally available) into the collet until it makes flush contact.

It is recommended to adjust the amount of extension of the tool tip to around 30mm. Also, use a collet and tool of matching diameters.

For a detection pin

Be sure to use with the tool flush against the magnetic area of the collet. Otherwise, detection of the jig location may fail.

⑤



Fully tighten the collet.

Using two spanners, tighten the collet fully. The appropriate tightening torque is 3.2 N·m (32 kgf-cm).

After mounting a tool, also perform [Tool Length Measurement] described on the next page.

Tool Length Measurement

This measures the length of the mounted tool. Make sure to perform this after changing the tool.

Before Tool Length Measurement

Make sure that detection of the jig location has finished. If detection of the jig location has not finished, the tool length measurement may not be possible.

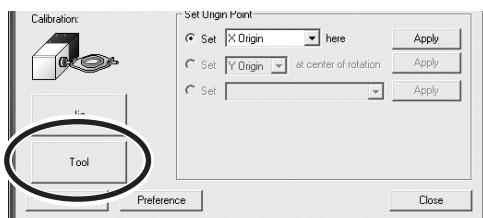
☞ P. 67, "Detection of the Jig Location"

Procedure

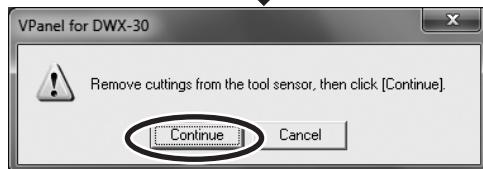
① Mount a cutting tool and close the front covers.

☞ P. 76, "Installing a Tool"

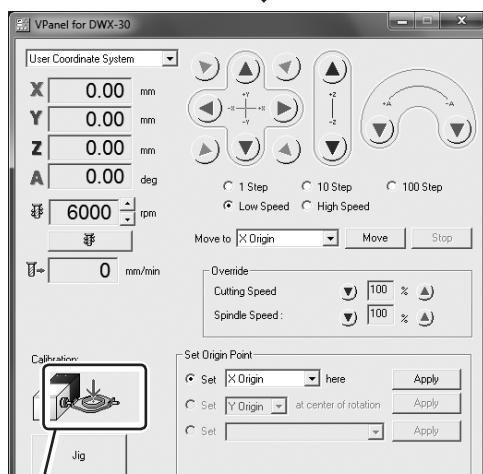
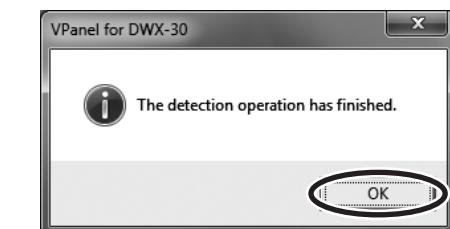
2



Click [Tool].



3



Make sure no buildup of cutting waste is present on the tool sensor, then click [Continue].

The tool moves and descends to the position where it touches the tool sensor.

Click [OK].

The tool length measurement finishes.

After the tool length measurement finishes, the red arrow is displayed in the center of the main clamp.

Starting Cutting

Send cutting data from the computer and start cutting. The feed rate and the speed of spindle rotation are determined by the cutting data received.

Before Starting Cutting

Make sure that the following procedures have finished. If these procedures have not finished, the intended cutting may not be possible.

- Detection of the jig location
☞ P. 67, "Detection of the jig location"
- Tool Length Measurement
☞ P.77, "Tool Length Measurement"

Procedure

① Verify that the cover of the dust collection capsule is properly attached.

② Close the front covers.

③ Send cutting data from the computer and start cutting.

When the tool type has been changed during cutting, measure the tool length again and resume cutting.

☞ P.77, "Tool Length Measurement"

④ When cutting has finished, press the VIEW button.

☞ P. 57, "Moving to the VIEW Position"

⑤ Open the front covers and remove the workpiece.

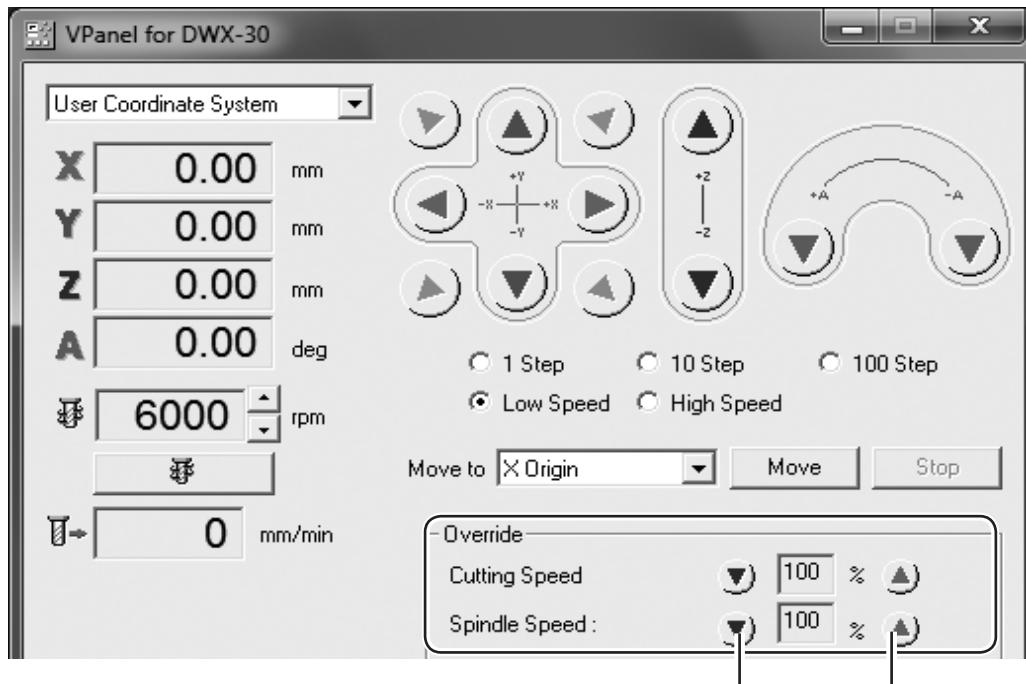
This completes the cutting. After removing the workpiece, trim away any excess areas.

4-3 Override

What's an Override?

On this machine, you can adjust the cutting speed and the speed of spindle rotation while cutting is in progress. You adjust these by specifying the ratio of change relative to the present speed, as a percentage. This feature is called "override." This feature is useful when you want to change the respective speeds on the fly as you monitor the status of cutting.

How to Set Overrides



Clicking these buttons adjusts the values.

Cutting-speed Override

This is the speed of tool movement when cutting the workpiece. The speed specified by the command in the cutting data is taken to be 100%.

Spindle Override

This is the speed of spindle rotation. The speed specified by the command in the cutting data is taken to be 100%. This is also effective when rotating the spindle during manual operations.

Important Notes on Overrides

Setting an override does not let you perform operation beyond the machine's maximum or minimum speeds.

4-4 Fine-Tuning the Origins

Method for Fine-Tuning the Origins

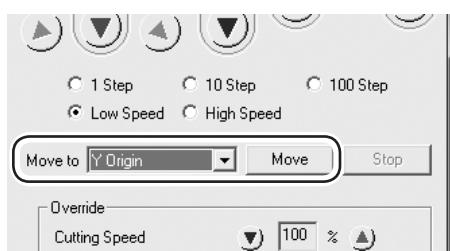
On this machine, after detection of the jig location, the origin of each axis is set up automatically. When you want to adjust the origin of each axis obtained through jig-location detection more exactly, refer to the method described below.

The method described below is for fine-tuning the Y-axis origin. Use the same method for the other origins as well.

For information on how to determine the adjustment values of Y-axis and Z-axis origins, refer to the following section.

Procedure

①

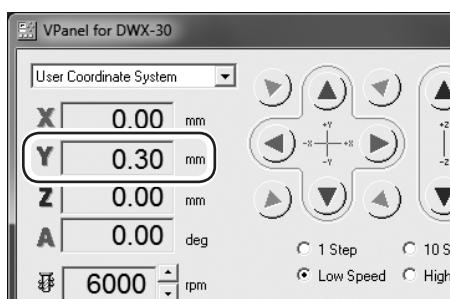


Move the tool to the Y origin point.

In VPanel, select "Y origin" and click [Move].

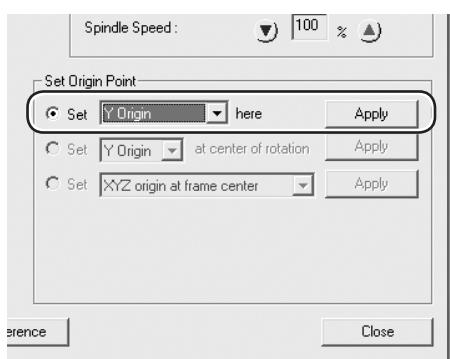
⇒ P. 57, "Moving to a Specific Position"

②



Move the Y axis the distance of the adjustment value.

③



Make the setting for the base point.

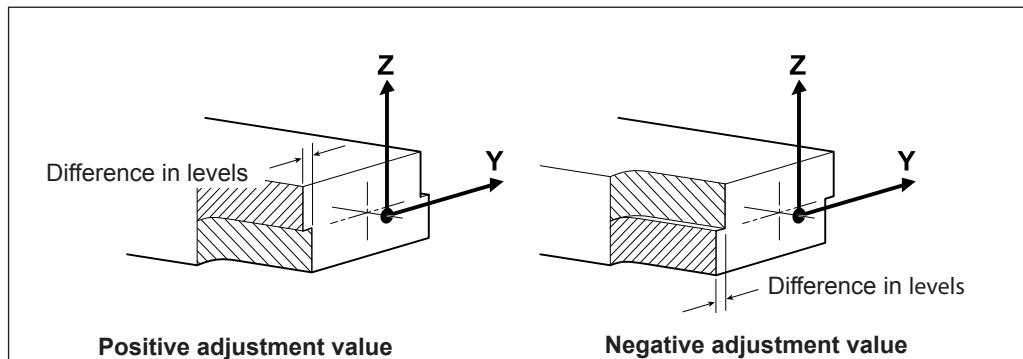
Select "Y-origin" and click [Apply].

Determining the Adjustment Value

Adjustment Value for the Y-axis Origin

You determine the adjustment value from the difference in levels at the seam produced between the first and second surfaces in two-surface cutting. The estimated adjustment value is one-half the difference in levels. However, be careful to note the sign of the value (plus or minus). As the figure shows, the sign of the adjustment value (positive or negative) changes depending on the direction of the misalignment.

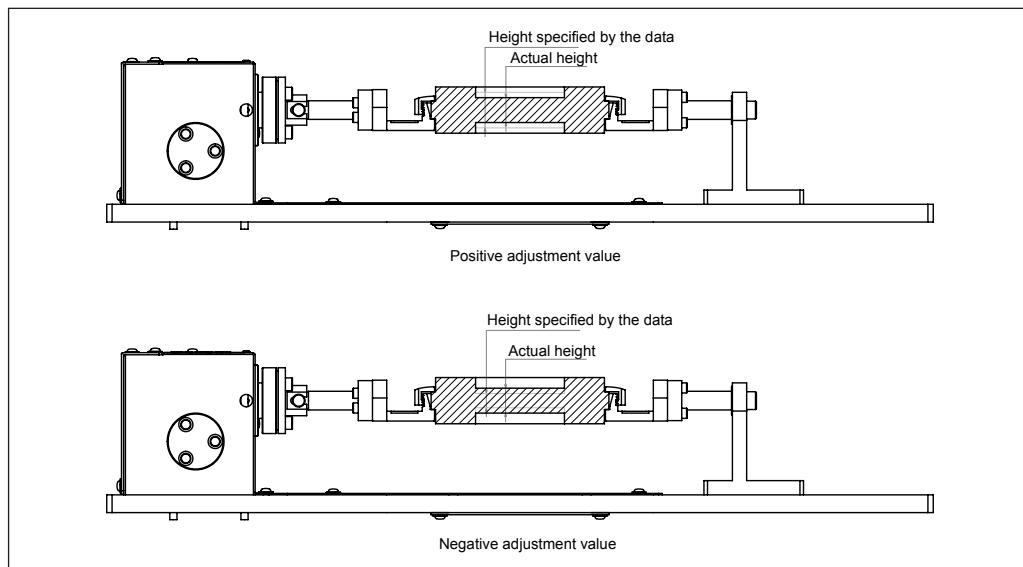
As an example, when the difference in levels is 0.2 millimeters, with the upper level misaligned in the positive direction and the lower level misaligned in the negative direction along the Y axis, then the estimated adjustment value is -0.1 millimeters.



Adjustment Value for the Z-axis Origin

You determine the adjustment value from the discrepancy between the expected and actual values for the thickness of the finished result of two-surface cutting. The estimated adjustment value is one-half the discrepancy. However, be careful to note the sign of the value (plus or minus). When the actual value is larger than the expected value, the adjustment value is negative.

As an example, if data for a height of 50 millimeters yields cutting results that are 50.1 millimeters, the estimated adjustment value is -0.05 millimeters.



Chapter 5

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5-1 Maintenance

Care and Maintenance of the Cutting Machine

⚠ WARNING

Never use a pneumatic blower.

This machine is not compatible with a pneumatic blower. Cutting waste may get inside the machine and cause fire or electrical shock.

⚠ WARNING

Never use a solvent such as gasoline, alcohol, or thinner to perform cleaning.

Doing so may cause fire.

⚠ WARNING

Disconnect the power cord before performing cleaning or maintenance.

Attempting such operations while the machine is connected to a power source may result in injury or electrical shock.

⚠ WARNING

When using a vacuum cleaner to take up cutting waste, exercise caution to prevent fire or dust explosion.

Taking up fine cuttings using an ordinary vacuum cleaner may cause danger of fire or explosion. Check with the manufacturer of the vacuum cleaner. When the safety of use cannot be determined, clean using a brush or the like, without using the vacuum cleaner.

⚠ CAUTION

Caution: high temperatures.

The cutting tool and spindle motor become hot. Exercise caution to avoid fire or burns.

⚠ CAUTION

When performing maintenance, be sure to keep the tool detached.

Contact with the blade may cause injury.

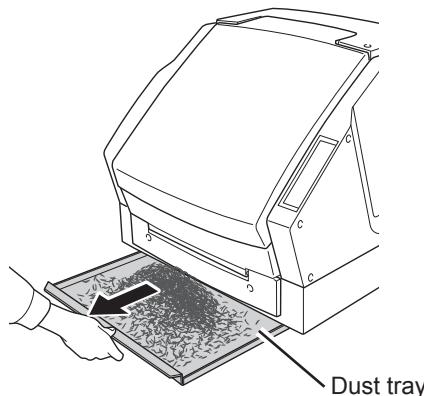
- This machine is a precision device. Carry out daily care and maintenance.
- Carefully clean away cutting waste. Operating the machine with a large amount of cutting waste present may cause malfunction.
- Never apply silicone substances (oil, grease, spray, etc.) to the machine. Doing so may cause poor switch contact.
- Never apply lubrication.

Cleaning around the table

After operation, use a brush or the like to clean away any buildup of cutting waste around the table or on the machine.

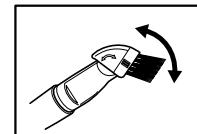
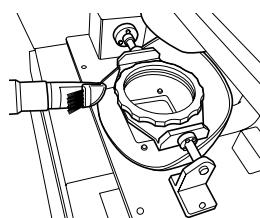
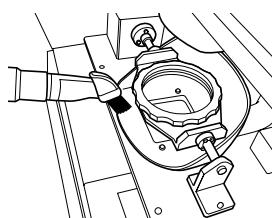
Cleaning the dust tray

After operation, dispose of any cutting waste that has collected in the dust tray.



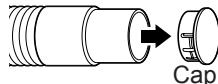
Cleaning inside of the dust collection capsule

When cutting is finished, fix the cleaning nozzle to the dust collection hose C and remove the cover of the dust collection capsule to clean the machine.

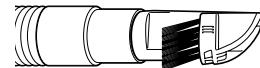
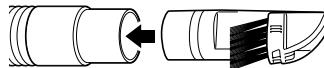


By turning the top, you can make it applicable to sweeping or vacuuming.

Dust collection hose C



Cleaning nozzle



Care for the Detection Pin and the Attachment for Detection

Take care of the detection pin and the attachment for detection on a routine basis. The detection pin or the attachment that gathers rust or dust will prevent the accurate detection, which may result in the situation where you cannot perform cutting as intended or where the machine should be damaged.

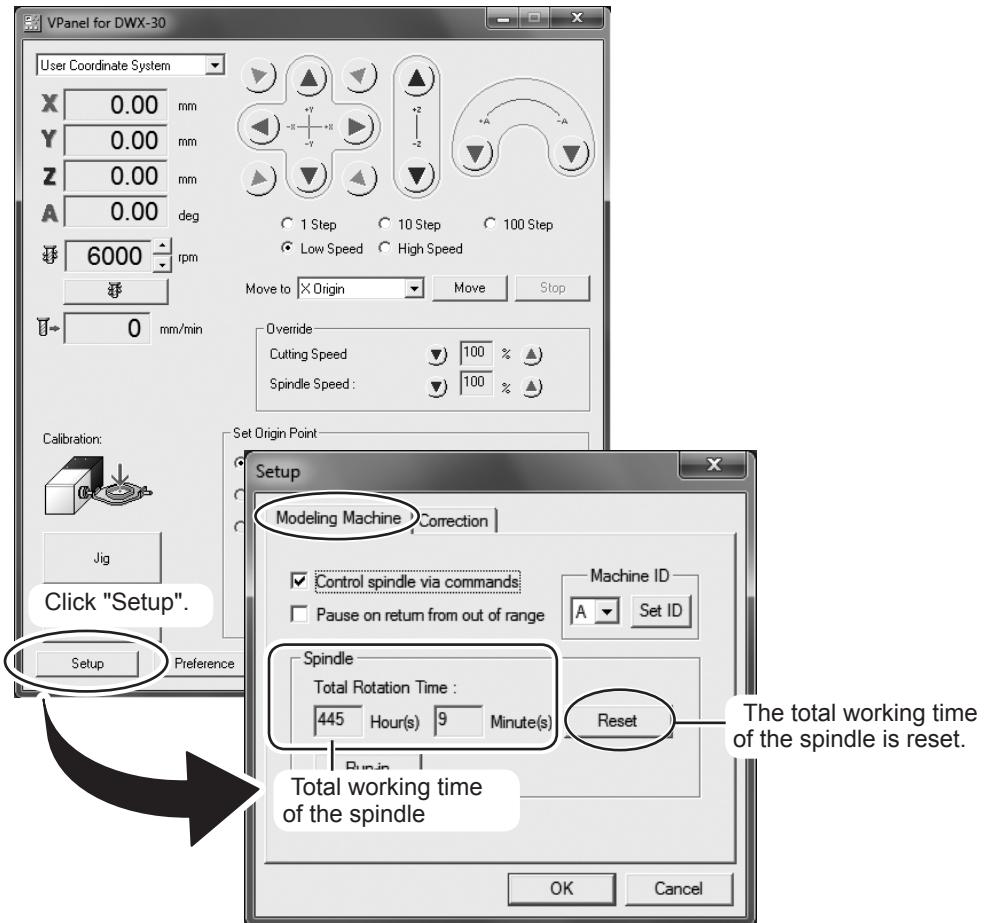
Care, Maintenance, and Storage Methods

- After use, wipe clean using a clean cloth, apply rust-preventive oil generously, and store.
- When the item will be out of use for a prolonged period, store in a location with low humidity and little fluctuation in temperature.

Maintenance of the Spindle Unit

The spindle unit and the belt are parts that wear out. The replacement cycle varies according to usage conditions, but as a general guide, you should replace them after every 2,000 hours of use. You can use VPanel to view the total working time of the spindle. Refer to this to determine when replacement is needed. For information on how to replace the spindle unit, refer to the documentation included with the ZS-30 replacement spindle unit.

Checking the total working time of the spindle using VPanel



5-2 What to Do If...

Initialization is not performed or initialization fails.

Is a front cover open?

When starting the machine, close the upper and lower front covers. For safety, initialization is not performed when a cover remains open at startup.

Is anything caught on the spindle head or table?

Check whether something has become caught and is impeding initialization.

Is anything caught on the main clamp?

Perform the followings and remove any obstructions that impede initialization.

1. Switch off the main power, and then switch on the main power.

Never switch on the sub power.

2. Hold down  of the handy panel.

The LED lamp A lights up. Turning the handle, the main clamp (A-axis) turns.

VPanel doesn't start correctly.

Has initialization been completed?

Before you start VPanel, first switch on the power to the machine.

☞ P. 50, "Starting and quitting"

Is the computer connected?

Check whether the connector cable has come loose.

Is the driver installed correctly?

If the connection to the computer is not made in the sequence described, the driver may fail to be installed correctly. VPanel does not function normally when driver is misconfigured. Check again to ensure that the connection was made using the correct procedure.

☞ P. 41, "Installing the Windows-based Driver"

Operations are ignored.

Is the cable connected?

Connect the cable securely.

☞ P. 39, "Cable Connections"

Was the machine started according to the correct procedure?

Simply switching on the power does not enable operation. Start the machine using the correct procedure.

☞ P. 50, "Starting and quitting"

Are front covers open?

This machine restricts some operations when a front cover is open. Close both the upper and lower front covers.

Is the ERROR light flashing?

The ERROR light is flashing rapidly.

An emergency stop occurred because a serious error was detected. Resuming operation is not possible. A description of the error is displayed in VPanel. Switch off the main power to quit the operation, eliminate the cause, then redo the operation from the beginning. If the emergency stops continue even after eliminating the cause, contact your authorized Roland DG Corp. dealer.

☞ P. 50, "Starting and quitting," p. 91, "Responding to an Error Message"

The ERROR light is flashing slowly.

Operation was paused because an error was detected. A description of the error is displayed in VPanel. Follow the displayed instructions to resume operation.

☞ P. 59, "Pausing and Resuming Operation"

Is operation paused?

When the PAUSE light is on, it means that operation is paused. When the machine is paused, cutting stops and some operations are restricted. Cancel the paused state.

☞ P. 59, "Pausing and Resuming Operation"

Is a large amount of cutting waste present?

Clean away any cutting waste. Clean the area around the spindle especially carefully.

☞ P. 84, "Care and Maintenance of the Cutting Machine"

Is the handy panel connected correctly?

When inserting, orient correctly and insert fully. Also, before inserting or removing the connector cable for the handy panel, switch off the power to the machine. Making the connection while the power is on may cause the machine to malfunction.

☞ P. 39, "Connecting the Handy Panel," p. 50, "Starting and Quitting"

Is the driver installed correctly?

If the connection to the computer is not made in the sequence described, the driver may fail to be installed correctly. Check again to ensure that the connection was

made using the correct procedure.

☞ P. 41, "Installing the Windows-based Driver"

Is VPanel displaying an error message?

☞ P. 91, "Responding to an Error Message"

Is the connection method correct when connecting multiple units?

The connection method may be incorrect when connecting more than one machine. Confirm the correct method.

☞ P. 41, "Connecting Multiple Units"

The spindle doesn't rotate.

Are front covers open?

For safety, the spindle does not rotate when front covers are open. Close both the upper and lower front covers.

Is a large amount of cutting waste present?

Clean away any cutting waste. Clean the area around the spindle especially carefully.

☞ P. 84, "Care and Maintenance of the Cutting Machine"

Has a setting been made to keep the spindle from rotating?

In VPanel, click the [Setup], then click the [Modeling Machine] tab. Here, select the [Control spindle via commands] check box.

Abnormal cutting is performed.

Have the origin been set at correct location?

If jig-location detection, or detection of the reference position for cutting is not carried out correctly, the origin point may not be set at the correct location. If the origin point is not set at the correct location, cutting at an unintended location or at the wrong depth may occur.

Is the misalignment of centers of workpiece height and A axis updated to the cutting data?

The centers of workpiece height and A axis are not aligned, when you're using a cylindrical workpiece without levels or a block workpiece. Create a cutting data with caution on this point.

☞ P. 73, "Misalignment of centers of workpiece height and A axis (Offset)"

Jig detection failed.

Is the jig, detection pin, sensor or detection attachment dirt?

Clean away any grime on the jig, detection pin, sensor, or detection attachment. Soiling due to buildup of cutting waste or the like on any of these may impede correct sensor operation, making correct detection of the jig impossible.

The feed rate or spindle speed is wrong.

Has an override been set?

An override changes the feed rate or spindle speed. Check the settings for overrides. Unless you have a special reason for changing them, leave all overrides set at 100%.

☞ P. 80, "Override"

The cutting results are not attractive.

Is the workpiece securely mounted in place?

Redo loading of the workpiece. Fasten in place securely, so that the workpiece will not slip out of place or come loose because of tool pressure or vibration during cutting.

Is the tool firmly secured in place?

Retighten the collet to secure in place firmly.

☞ P. 76, "Installing a Tool"

Is the tool tip worn?

If the tip of the tool is worn, replace with a new tool.

Installation is impossible

If installation quits partway through, or if the wizard does not appear when you make the connection with a USB cable, take action as follows.

Windows 7

1. If the [Found New Hardware] appears, click [Cancel] to close it.
2. Click the [Start] menu, then right-click [Computer]. Click [Properties].
3. Click [Device Manager]. The [User Account Control] appears, click [Continue]. The [Device Manager] appears.
4. At the [View] menu, click [Show hidden devices].
5. In the list, find [Other devices], then double-click it. When the model name you are using or [Unknown device] appears below the item you selected, click it to choose it.

6. Go to the [Action] menu, and click [Uninstall].
7. In "Confirm Device Uninstall" window, select [Delete the driver software for this device.], and then click [OK].
8. Detach the USB cable connected to the printer, and the restart Windows.
9. Uninstall the driver. Carry out the steps from step 3 in page 89 "Uninstall the Driver Windows 7" to uninstall the driver.
10. Install the driver again according to the procedure in page 41 "Installing and Setting Up the Software."

Windows Vista

1. If the [Found New Hardware] appears, click [Cancel] to close it.
2. Click the [Start] menu, then right-click [Computer]. Click [Properties].
3. Click [Device Manager]. The [User Account Control] appears, click [Continue]. The [Device Manager] appears.
4. At the [View] menu, click [Show hidden devices].
5. In the list, find [Printers] or [Other device], then double-click it. When the model name you are using or [Unknown device] appears below the item you selected, click it to choose it.
6. Go to the [Action] menu, and click [Uninstall].
7. In "Confirm Device Uninstall" window, select [Delete the driver software for this device.], then click [OK].
8. Detach the USB cable connected to the printer, and the restart Windows.
9. Uninstall the driver. Carry out the steps from step 3 in page 89 "Uninstall the Driver Windows Vista" to uninstall the driver.
10. Install the driver again according to the procedure in page 41 "Installing and Setting Up the Software."

Windows XP

1. If the [Found New Hardware Wizard] appears, click [Finish] to close it.
2. Click the [Start] menu, then right-click [My Computer]. Click [Properties].
3. Click the [Hardware] tab, then click [Device Manager]. The [Device Manager] appears.
4. At the [View] menu, click [Show hidden devices].
5. In the list, find [Printers] or [Other device], then double-click it. When the model name you are using or [Unknown device] appears below the item you selected, click it to choose it.
6. Go to the [Action] menu, and click [Uninstall].
7. In "Confirm Device Uninstall" window, click [OK].
8. Close the [Device Manager] and click [OK].
9. Detach the USB cable connected to the printer, and the restart Windows.

10. Uninstall the driver. Carry out the steps from step 3 in page 90 "Uninstall the Driver Windows XP" to uninstall the driver.
11. Install the driver again according to the procedure in page 41 "Installing and Setting Up the Software."

Uninstalling the Driver

When uninstalling the driver, perform following operation.

Windows 7

*If the driver is uninstalled without following the procedure given below, there is a possibility that it might not be able to be re-installed.

1. Before you start uninstallation of the driver, unplug the USB cables from your computer.
2. Log on to Windows as "Administrator" right.
3. From the [Start] menu, click [Control Panel]. Click [Uninstall a program].
4. Click the driver for the machine to delete to select it, then Click [Uninstall].
5. A message prompting you to confirm deletion appears. Click [Yes].
6. From the [Start] menu, choose [All Programs], then [Accessories], then [Run], and then click [Browse].
7. Choose the name of the drive or folder where the driver is located. (*)
8. Select "SETUP.EXE" and click [Open], then click [OK].
9. The [User Account Control] appears, click [Allow].
10. The Setup program for the driver starts.
11. Click [Uninstall] to choose it. Select the machine to delete, then click [Start].
12. If it is necessary to restart your computer, a window prompting you to restart it appears. Click [Yes].
13. The uninstallation finishes after the computer restarts.

(*) When using the CD-ROM, specify the folder as shown below (assuming your CD-ROM drive is the D drive).

D:\Drivers\25D\WIN7X64 (64 bit edition)

D:\Drivers\25D\WIN7X86 (32 bit edition)

If you're not using the CD-ROM, go to the Roland DG Corp. website (<http://www.rolanddg.com/>) and download the driver for the machine you want to delete, then specify the folder where you want to expand the downloaded file.

Windows Vista

1. Before you start uninstallation of the driver, unplug the USB cables from your computer.
2. Log on to Windows as "Administrators" right.

3. From the [Start] menu, click [Control Panel]. From the [Hardware and Sound] group, click [Printer]. [Printer] folder opens.
4. Click the model name's icon you are using. From the [Organize] menu, click [Delete]. The [User Account Control] appears, click [Continue].
5. A message prompting you to confirm deletion appears. Click [Yes].
6. In the [Printers] folder, right-click any location where no printer icon is present. From the [Run as administrator] menu, select [Server Properties]. The [User Account Control] appears, click [Continue].
7. Click the [Drivers] tab, then from the [Installed printer drivers] list, choose the machine to delete. Click [Remove].
8. The [Remove Driver And Package] appears, select [Remove driver and driver package]. Click [OK].
9. When the prompt message appears, click [Yes].
10. The package and driver to delete are displayed. Make sure that what is displayed is the machine you want to delete, then click [Delete].
11. The items that have been deleted are displayed. Click [OK].
12. Click [Close] on [Remove Driver And Package] window.
13. From the [Start] menu, choose [All Programs], then [Accessories], then [Run], and then click [Browse].
14. Choose the name of the drive or folder where the driver is located. (*)
15. Select "SETUP.EXE" and click [Open], then click [OK].
16. The [User Account Control] appears, click [Allow].
17. The Setup program for the driver starts.
18. Click [Uninstall] to choose it. Select the machine to delete, then click [Start].
19. If it is necessary to restart your computer, a window prompting you to restart it appears. Click [Yes].
20. The uninstallation finishes after the computer restarts.

(*) When using the CD-ROM, specify the folder as shown below (assuming your CD-ROM drive is the D drive).

D:\Drivers\25D\WINVISTAX64 (64 bit edition)

D:\Drivers\25D\WINVISTAX86 (32 bit edition)

If you're not using the CD-ROM, go to the Roland DG Corp. website (<http://www.rolanddg.com/>) and download the driver for the machine you want to delete, then specify the folder where you want to expand the downloaded file.

Windows XP

1. Before you start uninstallation of the driver, unplug

- the USB cables from your computer.
2. Log on to Windows as "Administrators" right.
3. From the [Start] menu, click [Control Panel]. Click [Printers and Other Hardware], then click [Printers and Faxes].
4. Click the model name's icon you are using. From the [File] menu, choose [Delete].
5. A message prompting you to confirm deletion appears. Click [Yes].
6. Go to [File] and select [Server Properties].
7. Click the [Driver] tab, then from the [Installed printer drivers] list, choose the machine to delete.
8. Click [Delete]. When the prompt message appears, click [Yes].
9. From the [Start] menu, select [Run], then click [Browse].
10. From the [File Locations] list, choose the name of the drive or folder where the driver is located. (*)
11. Select "SETUP.EXE" and click [Open], then click [OK].
12. The Setup program for the driver starts.
13. Click [Uninstall] to choose it. Select the machine to delete, then click [Start].
14. If it is necessary to restart your computer, a window prompting you to restart it appears. Click [Yes].
15. The uninstallation finishes after the computer restarts.

(*) When using the CD-ROM, specify the folder as shown below (assuming your CD-ROM drive is the D drive).
D:\Drivers\25D\WINXPX64 (64 bit edition)
D:\Drivers\25D\WINXPX86 (32 bit edition)

If you're not using the CD-ROM, go to the Roland DG Corp. website (<http://www.rolanddg.com/>) and download the driver for the machine you want to delete, then specify the folder where you want to expand the downloaded file.

The computer shut down

Is a machine with a same ID connected to the computer?

When more than one machine is connected to the computer, if machines with a same ID are connected at the same time, the computer might shut down. If the computer shuts down, turn off the power of all the connected machines and disconnect the USB cables from the computer. Next, restart the computer, and then start VPanel. If VPanel does not start, install it again. Then, make the setting again in a way that a same ID is not assigned to more than one machine.

☞ P. 42, "Installing and Setting Up VPanel," p. 44, "Connecting Multiple Units"

5-3 Responding to an Error Message

This section describes the error messages that may appear on the monitor of the computer you're using, and how to take action to remedy the problem. If the action described here does not correct the problem, or if an error message not described here appears, contact your authorized Roland DG Corp. dealer.

No response is returned from machine.

Click [OK]. The machine may have accidentally been switched off, or the connector cable may have come loose. After checking, restart the machine.

☞ P. 50, "Starting and Quitting"

No modeling machine was found.

Click [Quit], then restart the machine and redo the operation from the beginning.

☞ P. 50, "Starting and Quitting"

Detection pin absent or not installed correctly.

During jig detection, either the detection pin was not installed or the amount of extension was incorrect, and so detection was aborted. Clicking "OK" cancels detection operation. Make sure the detection pin is installed correctly, then redo detection of the jig location.

☞ P. 76, "Installing a Tool"

Operation is impossible because jig detection has not been performed.

This appears if "Move to Rotation center Y" is selected in VPanel when jig detection has never been performed. Performing jig detection makes it possible to execute movement to center of rotation Y.

☞ P. 57, "Moving to a Specific Position"

Detection of the jig failed.

The sensor failed to respond during jig detection, and so detection failed. The sensor may fail to respond if the detection attachment, sensor, detection pin, or jig is dirty. Clean away any grime and redo detection of the jig location.

The handy panel is not responding.

This is displayed if the handy panel comes loose or malfunctions during operation. Clicking [OK] clears the message. Operations that do not use the handy panel can be continued. If this message continues to appear even after you have switched off the main power, recon-

nected the handy panel, and redone the operation from the beginning, then the handy panel may be malfunctioning. In such cases, contact your authorized Roland DG Corp. dealer.

☞ P. 39, "Connecting the Handy Panel," p. 50, "Starting and Quitting"

Front cover open.

This machine restricts some operations to ensure safety when front covers are open. Close both the upper and lower front covers.

Command Error

Operation was paused because a command error occurred. Click [Cancel] to quit cutting. Cutting can be resumed by clicking [Continue], but doing so is very likely to result in unintended operation and is not recommended.

Cover open error.

A front cover was opened during cutting or spindle rotation. Follow the on-screen messages to switch off the power, close the front cover, and redo the operation from the beginning.

**The spindle experienced an excessive load.
The spindle experienced an excessive current.**

The spindle motor is running hot.

The spindle control circuit is running hot.

A spindle-motor error occurred. This is caused by prolonged high load on the motor or by excessive torque being applied momentarily. Follow the on-screen messages to switch off the power. The cutting may have exceeded the capacity of the machine. Before restarting, revise the cutting conditions. Also, allow the machine to rest for some time, because the motor may have overheated. If messages like these persist, contact your authorized Roland DG Corp.

The connector for the rotary axis is detached.

The connector for the rotary axis has come loose or the cable has been damaged, making connection impossible. Follow the on-screen messages to switch off the power. Before restarting, check and correct the status of the connector. If this message persists even though the connector is properly connected, switch off the power and contact your authorized Roland DG Corp. dealer.

The handy panel is incapable of control.

An emergency stop occurred because control using the handy panel became impossible while operation was in progress. Follow the on-screen messages to switch off the power and reconnect the handy panel. If this message persists even though the handy panel is properly connected, the handy panel may be malfunctioning. Switch off the power and contact your authorized Roland DG Corp. dealer.

☞ P. 39, "Connecting the Handy Panel"

***-Limit switch not found.**

An emergency stop occurred because initialization failed. Switch the power off, remove any cutting waste or other obstructions impeding operation of the spindle head, then redo the operation from the start. If the message persists even after redoing the operation from the beginning, contact us or the dealer where you purchased the modeling machine.

* "X," "Y," "Z," or "A"

Spindle rotation is impossible because the spindle shaft is locked or voltage is too low.

An emergency stop occurred because the spindle cannot be rotated. Possible causes include the spindle shaft being frozen by accumulated cutting waste or the like, or a drop in voltage due to excess load on the spindle. Switch off the power, make sure no obstruction is impeding the operation of the spindle head, and take steps such as revising the cutting conditions as needed. The motor may also have overheated, so allow the machine to rest for some time before restarting. If messages like these still continue to appear, switch off the power and contact your authorized Roland DG Corp. dealer.

The NVRAM could not be accessed.

An emergency stop occurred because the machine's memory unit became partially inaccessible. Follow the on-screen messages to switch off the power and redo the operation from the beginning. If this message persists, switch off the power and contact your authorized Roland DG Corp. dealer.

A broken connection or other damage occurred between the spindle control circuit and the motor.

A communication error occurred in the spindle control firmware.

The spindle control firmware is inoperative.

An emergency stop occurred because of a error in spindle

control. Follow the on-screen messages to switch off the power and redo the operation from the beginning. If this message persists, switch off the power and contact your authorized Roland DG Corp. dealer.

5-4 Power Rating and Serial Number Locations

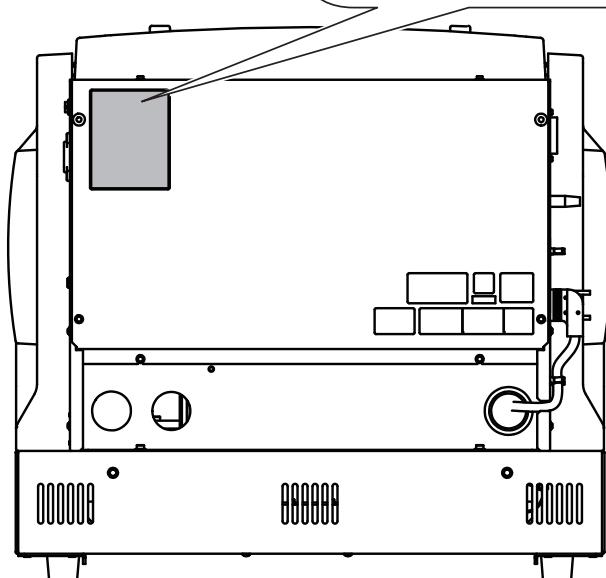
Serial Number

This is required when you seek maintenance, servicing, or support. Never peel off the label or let it get dirty.

Power Rating

Use an electrical outlet that meets the requirements for voltage and frequency given here.

Provide a power supply whose amperage is 2.8 A or higher (for 100 to 120 V) or 1.2 A or higher (for 220 to 240 V).



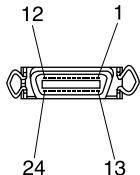
5-5 Expansion Connector Specification

Expansion Connector A

○ Pin Connection

Pin Number	Signal	Content	Pin number	Signal	Content
1	PW	---	13	PG	---
2	PW	---	14	PG	---
3	IN8 (Input port 8)	Reserved	15	OUT8(Output port 8)	Reserved
4	IN7 (Input port 7)	Reserved	16	OUT7(Output port 7)	Reserved
5	IN6 (Input port 6)	Reserved	17	OUT6(Output port 6)	Reserved
6	IN5 (Input port 5)	Reserved	18	OUT5(Output port 5)	Reserved
7	IN4 (Input port 4)	Reserved	19	OUT4(Output port 4)	Reserved
8	IN3 (Input port 3)	Reserved	20	OUT3(Output port 3)	Reserved
9	IN2 (Input port 2)	Reserved	21	OUT2(Output port 2)	Reserved
10	IN1 (Input port 1)	Reserved	22	OUT1(Output port 1)	Reserved
11	-----	-----	23	PG	---
12	-----	-----	24	PG	---

Pin connection



Ribbon connector 24 pins

Manufacturer: OMRON

Model number: XM882422-11

○ Input Port Specification

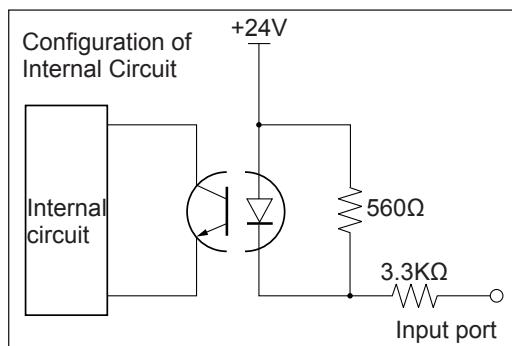
Number of input ports: 8

Input voltage: DC 24 V

Input current: 7 mA or less

Insulation method: Photo-coupler insulation

Adaptive connection: Output of an external device (sync output)



! Notice

The input ports are designed for connecting to non-contact output such as transistor. When connecting a mechanical contact (switch, relay, etc.), be sure to use a minimal-current product. Leakage current of a non-contact circuit (OFF) connected to each input port must be 1 mA or less.

○ Output Port Specification

Number of output ports: 8 (sync output)

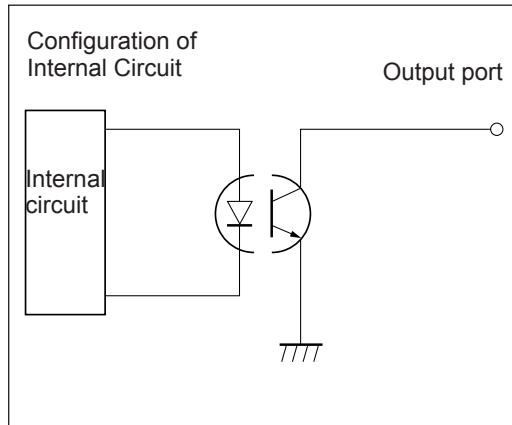
Rated load voltage: DC 24 V

Maximum load current: 8 mA per port (64 mA or less in total)

Leakage current: 0.1 mA or less

Insulation method: Photo-coupler insulation

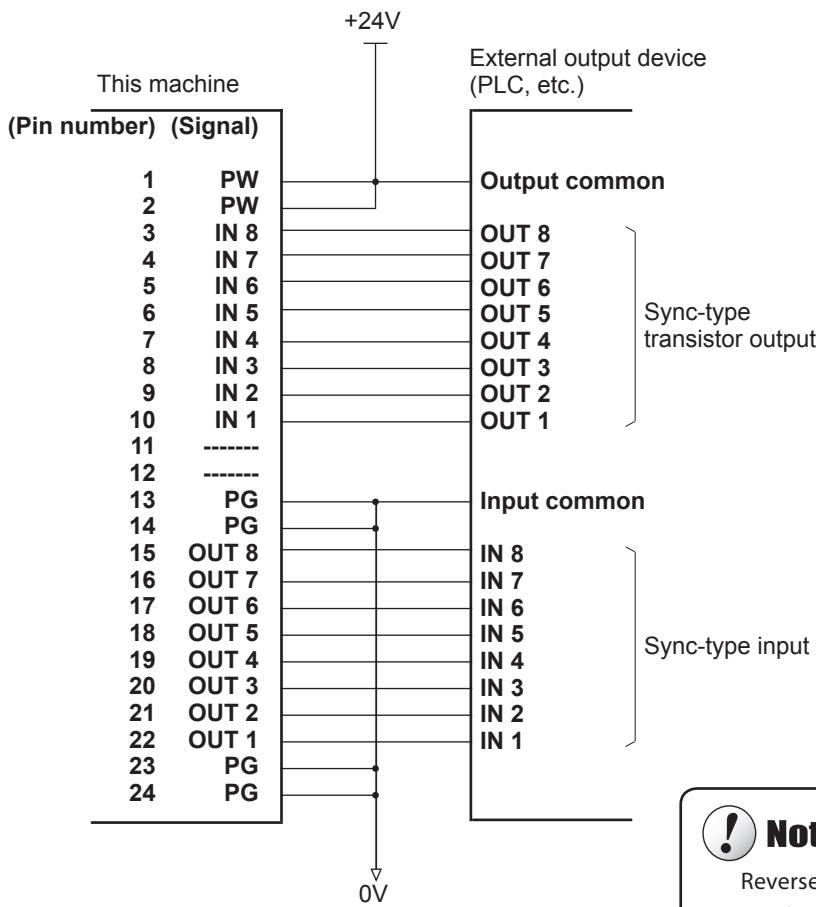
Adaptive connection: Input of an external device



! Notice

Never apply the load more than stated above. The output ports are designed for connecting to the load such as transistor. When connecting the inductive load (relay, etc.), be sure to apply a protection diode for absorbing back EMF to the coil. Inappropriate connection may cause damage to the circuit.

○ Example of a Connection to an External Device

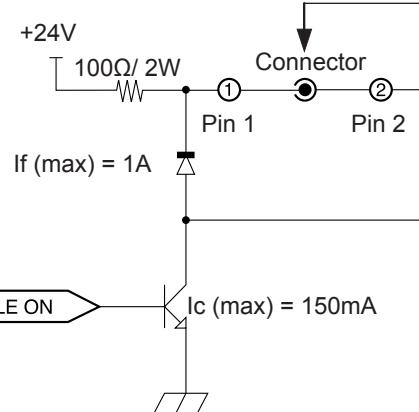


* We are not responsible for devices connected to this connector.

 **Notice**

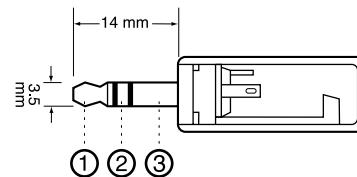
Reversed polarity may damage to the circuit. Be sure to check the connection before turning on the power. Do not execute an insulation test.

Expansion Connector B



This circuit works during spindle motor rotation.

Adaptive plug



Use a three-contact plug that meets the size requirements above.



Notice

Do not use the terminal ③. Use only the ① and ② terminals.



Notice

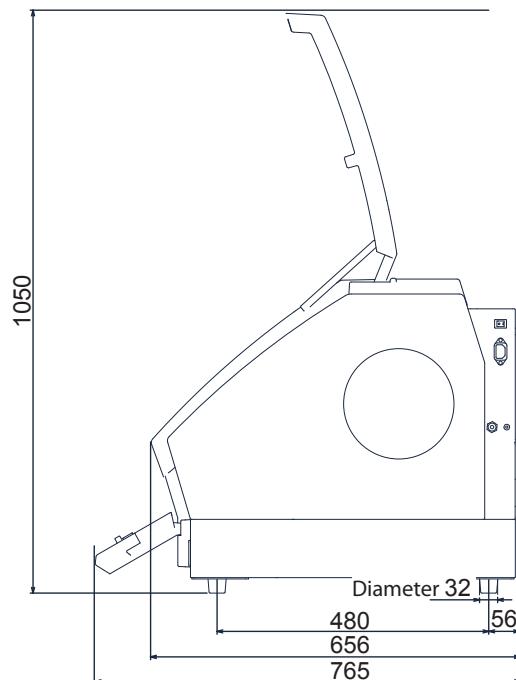
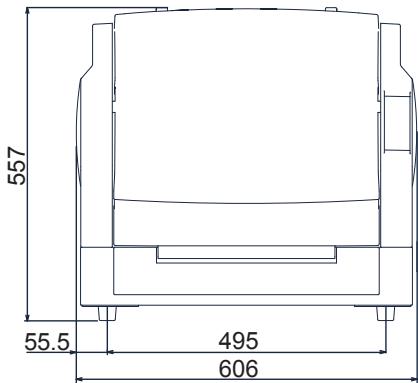
- ◆ Be sure to use the connector within the rated range shown above.
- ◆ Do not apply an additional voltage to the connector.
- ◆ Do not short-circuit the connector and earthing.

* We are not responsible for devices connected to this connector.

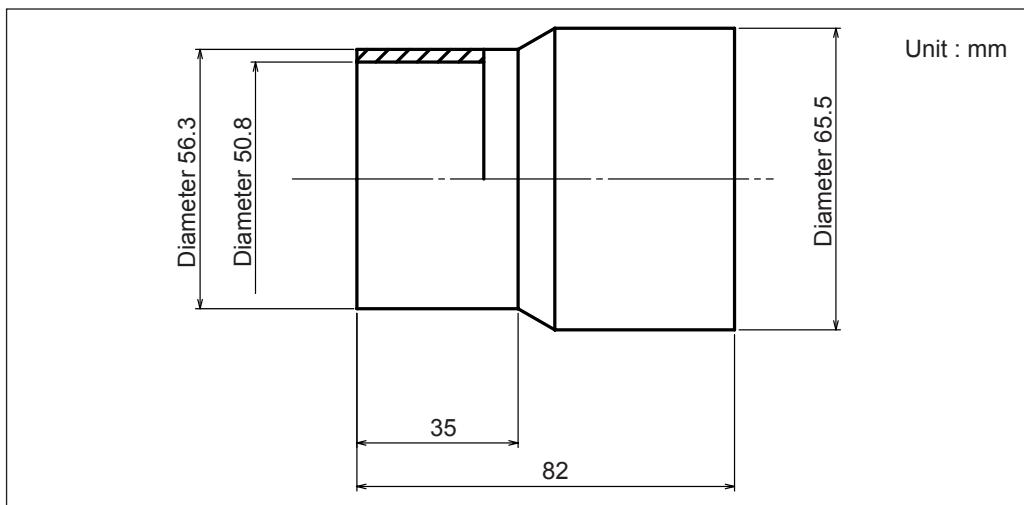
5-6 Dimensional Drawings

Dimension of Outline

Unit : mm

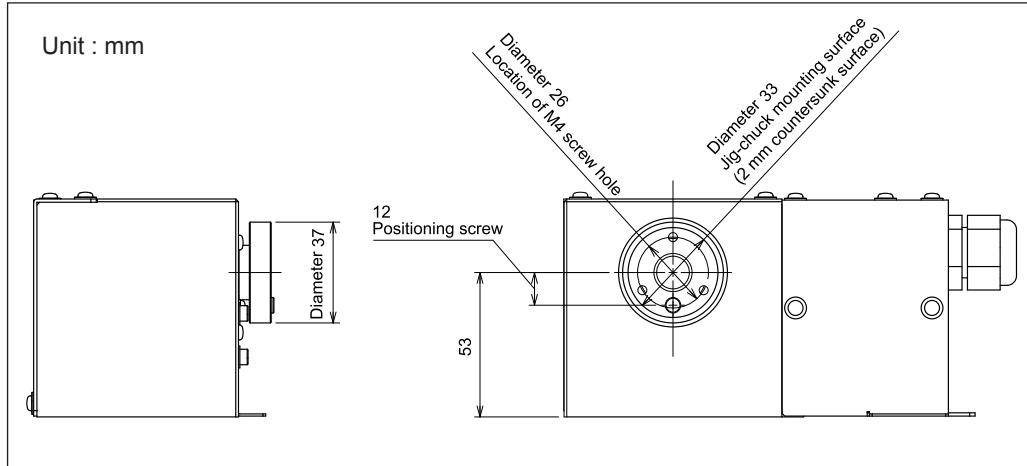


Opening Size to Connect a Dust Collector

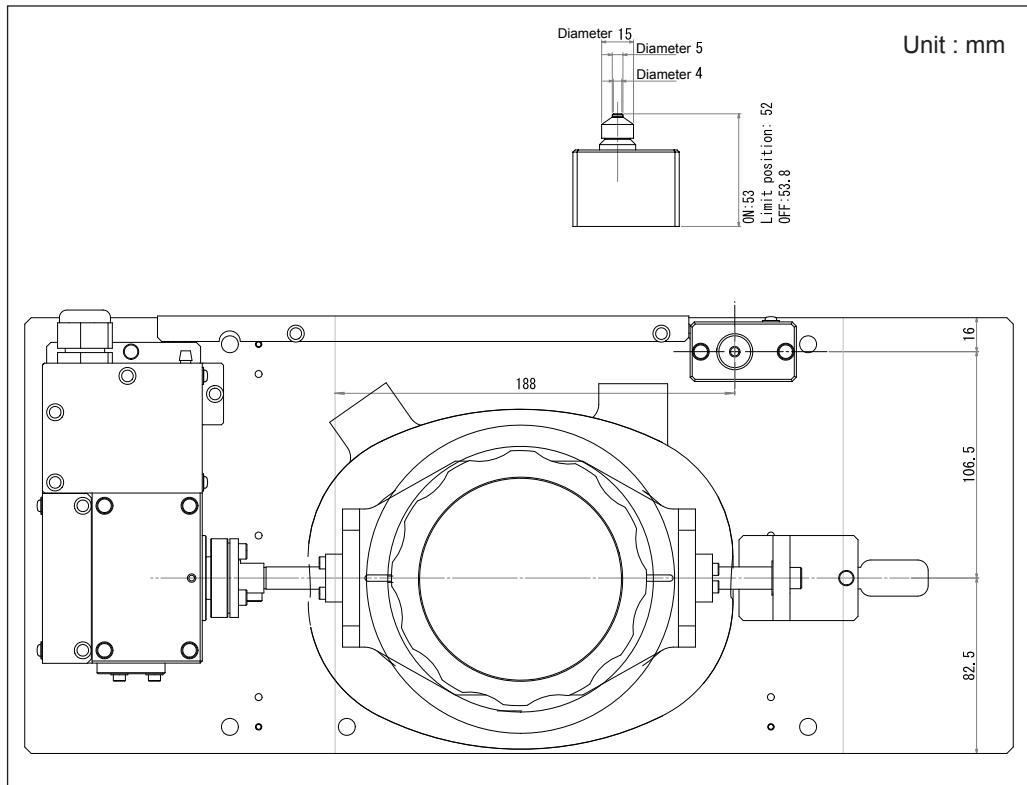


Rotary Axis/Tool Sensor Dimension

Rotary Axis

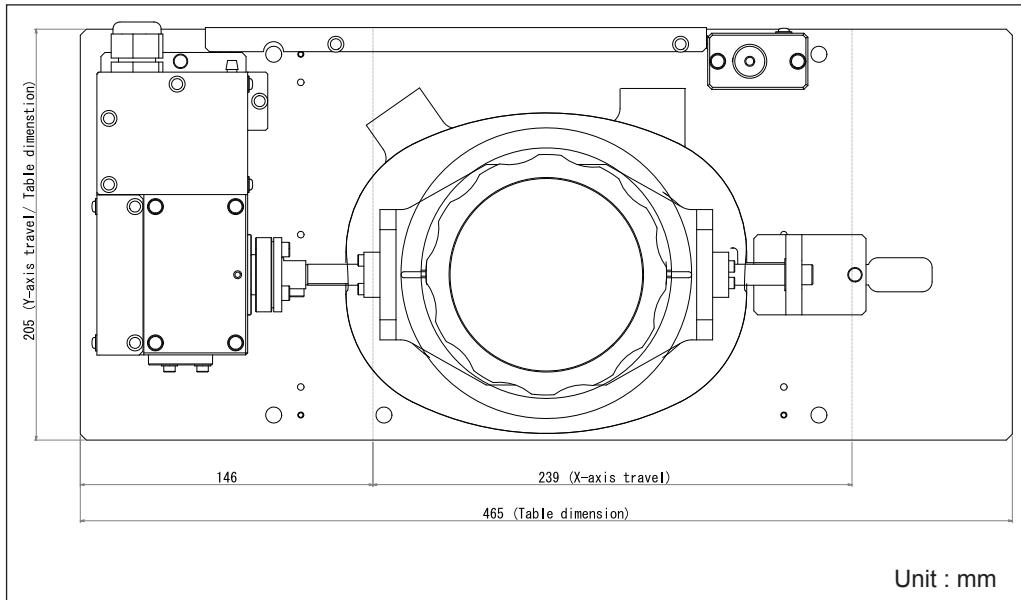


Tool Sensor

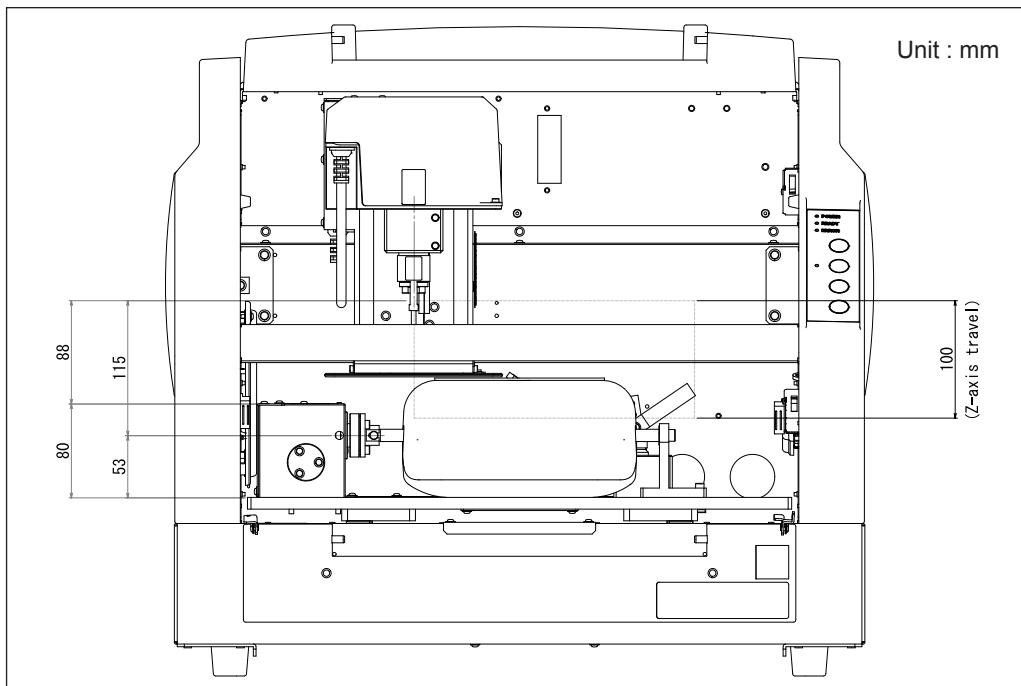


X-, Y- and Z-axis Travel / Table Dimension

X- and Y-axis travel / table dimension



Z-axis travel



5-7 Specifications

Main Specifications

	DWX-30	
Cutable material	Zirconia (pre-sintered), modeling wax	
Loadable workpiece shape	Disc (with levels)	External diameter (level section) : 98 to 100 mm External diameter (body section) : 95 mm Height (level section) : 10 mm Height (body section) : 12 to 26 mm
	Disc (without levels)	External diameter : 98 to 100 mm Height : 10 to 14 mm
	Block	Width x Depth : 40 x 75 mm, Height : 12 to 26 mm
X, Y, and Z operation strokes	X, Y, and Z: 239 x 205 x 100 mm (9.4 x 8.1 x 3.9 in.)	
Maximum angle of rotation	$\pm 18 \times 10^5$ ° (± 5000 rotations)	
X-, Y-, and Z-axis drive system	Stepping motor	
Operating speed	X and Y axes: 0.1 to 60 mm/sec. (0.004 to 2.4 in./sec.) Z axis: 0.1 to 30 mm/sec. (0.004 to 1.2 in./sec.) A axis: 11.25rpm	
Software resolution	X, Y and Z axis: 0.01mm/step (0.0004 in./step), A axis: 0.0225°/step	
Mechanical resolution	X and Y axis: 0.00125 mm/step (0.00005in./step) (micro-step control) Z axis: 0.00125 mm/step (0.00005in./step) (micro-step control) A axis: 0.0028125° /step (micro-step control)	
Spindle motor	Brushless DC motor, maximum 100W	
Spindle speed	6,000 to 30,000 rpm	
Tool chuck	Collet method	
Interface	USB (compliant with Universal Serial Bus Specification Revision 1.1)	
Control command set	RML-1	
Required power-supply amperage	Voltage and frequency: AC 100 to 120 V/220 to 240 V $\pm 10\%$, 50/60 Hz (overvoltage category II, IEC 60664-1) Required power capacity: 2.8 A (100 to 120 V)/ 1.2 A (220 to 240 V)	
Power consumption	275 W	
Operating noise	During operation: 60 dB (A) or less (when not cutting), during standby: 40 dB (A) or less	
External dimensions	Width x Depth x Height: 606 x 656 x 557 mm (23.9 x 25.9 x 22 in.)	
Weight	47 kg (104 lb)	
Installation Environment	Operating environment: Temperature of 5 to 40°C (41 to 104 °F), 35 to 80% relative humidity (no condensation) Ambient pollution degree: 2 (as specified by IEC 60664-1)	
Included items	Power cord, handy panel, collet (diameter 3.175 mm, 4.0 mm, 3.0 mm), detection pin, cap*, spacer, clamp for block workpiece, hexagonal driver, hexagonal wrench, spanner (10 mm, 17 mm), dust tray, USB cable, User's Manual (this document), Roland Software Package CD-ROM, etc.	

* The cutting machine is shipped from the factory with the cap installed on it.

System Requirements for USB Connection

Computer	Model preinstalled with 32 or 64-bit Windows 7, Windows Vista, or Windows XP, or any later operating system.
USB cable	Use the included USB cable.



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